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OFFICE OF PERSONNEL MANAGEMENT

5 CFR Parts 293, 351, 430, 432, 451, 511, 530, 531, 536, 540, 575, 591, 595, and 771

RIN 3206–AF69

Termination of the Performance Management and Recognition System

AGENCY: Office of Personnel Management.

ACTION: Final rule.

SUMMARY: The Office of Personnel Management (OPM) is issuing final regulations to implement the "Performance Management and Recognition System Termination Act of 1993" (Pub. L. 103–89), which provides for the temporary extension and orderly termination of the Performance Management and Recognition System (PMRS) and specifies how former PMRS employees will be paid.

EFFECTIVE DATE: September 9, 1994.

FOR FURTHER INFORMATION CONTACT: James Weddel, (202) 606–2858, concerning questions about the changes in 5 CFR parts 511, 530, 531, 536, 575, 591, and 595; and Barbara Colchao, (202) 606–2720, concerning questions about the changes in 5 CFR parts 293, 351, 430, 432, 451, 540, and 771.

SUPPLEMENTARY INFORMATION: On December 15, 1993, at 58 FR 65531, OPM published interim regulations to implement the "Performance Management and Recognition System Termination Act of 1993" (Pub. L. 103–89), with a 60-day comment period. These regulations were made effective retroactive to November 1, 1993.

On December 30, 1993, at 58 FR 69169, OPM published final regulations to implement locality-based comparability payments under the "Federal Employees Pay Comparability Act of 1990" (FEPCA) (Pub. L. 101–509). The locality pay regulations revised the definitions of *scheduled annual rate of pay* in §§ 531.101 and 531.301 which were previously published in the interim regulations implementing the PMRS Termination Act. The final regulations on locality pay were made effective January 1, 1994, and were applicable on the first day of the first pay period beginning on or after January 1, 1994.

On February 3, 1994, at 59 FR 5223, OPM published corrections to fix three typographical errors in the interim regulations for PMRS termination.

During the comment period, which ended February 14, 1994, OPM received three comments, each from a different Federal agency. One agency suggested revising the regulations to clarify that employees cannot "become" GM employees after November 1, 1993, and to specify the personnel actions that would trigger loss of GM status. A second agency asked for clarification of whether an employee who loses coverage as a result of a temporary promotion regains coverage when the temporary promotion ends, and if so, how the employee's pay would be set. A third agency felt that the text of § 531.406(b)(2) (i)–(iii) specifying when time in a non-pay status is creditable service for a within-grade increase should be simplified. The agency also asserted that certain definitions in §§ 531.101 and 531.301 were superseded by revised definitions in the final locality pay regulations. Finally, it was called to our attention that the instructions for setting pay on loss of GM status should be revised to clarify that pay retention is not required if an employee requests a reduction in grade.

Following are the major issues raised, a summary of comments on each issue, and a discussion of changes made to the interim regulations.

1. The definition of GM employee and loss of status as a GM employee.

Summary of Comments: One agency suggested that the statutory basis (Pub. L. 103–89) for the definition of *GM employee* should be introduced in its regulatory definition in § 531.202. The agency also noted that the timing and basis for GM status could be clarified. Another agency specifically asked for clarification of whether an employee who loses GM status when temporarily promoted after October 31, 1993, regains GM status when the temporary promotion ends.

Discussion and Changes: OPM is adopting the suggestion that section 4 of Pub. L. 103–89, the Performance Management and Recognition System Termination Act of 1993, be introduced in the definition of *GM employee* (see § 531.202(e)). Where possible, we are replacing references to coverage under section 4 of the Act with references to the amended definition of *GM employee* and, where appropriate, to a new paragraph, "status as a GM employee" (see § 531.203(g)), which specifies personnel actions under which an employee would retain or permanently lose GM status (see §531.204 (d), (e) and (f), and § 536.308(b)(3)). Also, § 531.204(d) and the definition of *GM employee* have been amended to remove any suggestion that status as a GM employee can be acquired any time other than on November 1, 1993, the effective date of section 4 of the Act.

When a temporary promotion begins after October 31, 1993, coverage under section 4 of the PMRS Termination Act (GM status) ends because of the change in grade. Coverage cannot be regained once it is lost because it is linked to continuous service as a supervisor or management official in the same grade and in the same agency after October 31 1993. Coverage is acquired only once, on November 1, 1993.

On the employee's return to the lower grade, the agency must set pay using GS pay setting rules. The agency may restore the employee's rate of basic pay to what it would have been had there never been a temporary promotion (including any within-grade or merit increases that would have been granted at the lower grade). Also, if permitted by its own policies, the agency may instead set pay at a higher rate using the highest previous rate under § 531.203(d). In either pay-setting procedure, if the recomputed rate of basic pay falls between steps of a GS grade or a special salary rate schedule, the rate of basic pay must be set at the next higher step within the lower grade. To clarify this policy, OPM has added a new paragraph entitled, "expiration or *termination of temporary promotions*" (see § 531.204(c)). This replaces OPM guidance that was previously published in Federal Personnel Manual (FPM) Supplement 990–2, Book 531, S4–5d.

That guidance has been abolished by the sunset of the FPM.

2. Setting pay on loss of GM status through voluntary reduction in grade.

Summary of Comments: It was called to our attention that the regulation on setting pay on loss of GM status implies that an employee retains pay if he or she is voluntarily reduced in grade (see redesignated 5 CFR 531.204(e)).

Discussion and Change: A new paragraph has been added to clarify that the provisions of § 531.204(e) (1) through (4) do not apply when an employee loses GM status as a result of a reduction in grade at the employee's request (see § 531.204(f)(3)). Rather, an agency may set pay at the lowest step of the lower grade or at a higher step in the lower grade under its policies for applying the maximum payable rate rules.

3. Creditable service in a waiting period for a within-grade-increase when an employee is in a non-pay status.

Summary of Comments: One agency proposed simplifying regulatory text by combining separate language for GS and GM employees.

Discussion and Change: OPM is removing unnecessary references to steps, *next higher rate within the grade,* and *GM employee* in § 531.406(b)(2) (i)–(iii) to be consistent with the language used to establish the length of waiting periods in § 531.405.

4. The impact of final locality pay regulations on PMRS termination regulations.

Summary of Comments: One agency commented that the revised definitions in §§ 531.101 and 531.301 of the interim regulations are no longer current since the definitions were subsequently revised again by the final regulations implementing locality pay adjustments.

Discussion and Change: This comment is partially correct. The current definition of *scheduled annual rate of pay* in §§ 531.101 and 531.301 is the definition as revised in the locality pay regulations published in the **Federal Register** on December 30, 1993 (58 FR 69169). However, the current definition of employee in § 531.101 is the definition as revised in the interim PMRS termination regulations. There is no change, except that a statutory reference in the employee definition in § 531.101 is clarified by inserting "of title 5."

Editorial Revisions to Regulations

References to the PMRS Termination Act in §§ 530.306(b)(2), 531.401(d), and 531.502 are clarified by replacing "Public Law 103–89" with "the Performance Management and Recognition System Termination Act of 1993 (Pub. L. 103–89)." References to GM employee in §§ 531.203(c)(2) and 531.205(a)(2)(i) are clarified by inserting the citation, "(as defined in § 531.202)." Also, minor editorial changes are being made to correct errors or clarify text at §§ 531.204(e)(1), 531.205(a)(2) (ii) through (iv), 531.403, 531.405(a) (1) and (2), and 536.308 (a) and (b).

Regulatory Flexibility Act

I certify that these regulations will not have a significant economic impact on a substantial number of small entities because they apply only to Federal agencies and employees.

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Office of Personnel Management

Lorraine A. Green,

Deputy Director.

Accordingly, the interim rule amending 5 CFR parts 293, 351, 430, 432, 451, 511, 530, 531, 536, 540, 575, 591, 595, and 771 published at 58 FR 65531 on December 15, 1993, amended by the final rule amending 5 CFR part 531 published at 58 FR 69169 on December 30, 1993, and corrected at 59 FR 5223 on February 3, 1994, is adopted as final with the following changes:

PART 530—PAY RATES AND SYSTEMS (GENERAL)

1. The authority citation for part 530 continues to read as follows:

Authority: 5 U.S.C. 5305 and 5307; E.O. 12748;

Subpart B also issued under sec. 302(c) and 404(c) of the Federal Employees Pay Comparability Act of 1990 (Pub. L. 101–509), 104 Stat. 1462 and 1466, respectively;

Subpart C also issued under sec. 4 of the Performance Management and Recognition System Termination Act of 1993 (Pub. L. 103–89), 107 Stat. 981.

2. In § 530.306, paragraph (b)(2) is revised to read as follows:

§ 530.306 Determining employee rates.

* * * * *

(b) * * *

(2) If the employee is receiving a rate of basic pay applicable to a GM employee (as defined in § 531.202 of this chapter), the employee shall receive his or her existing rate. This rate may be lower than the minimum rate for the regular schedule, as permitted by section 4 of the Performance Management and Recognition System Termination Act of 1993 (Pub. L. 103–89). If the employee's existing rate exceeds the maximum rate for the regular or decreased special salary rate schedule, the employee shall be entitled to the existing rate, as provided in § 536.104(a)(3) of this chapter.

* * * * *

PART 531—PAY UNDER THE GENERAL SCHEDULE

3. The authority citation for part 531 continues to read as follows:

Authority: 5 U.S.C. 5115, 5307, 5338; sec. 4 of the Performance Management and Recognition System Termination Act of 1993, 107 Stat. 981; E.O. 12748, 56 FR 4521, February 4, 1991, 3 CFR 1991 Comp., p. 316;

Subpart A also issued under section 302 of the Federal Employees Pay Comparability Act of 1990 (FEPCA), 104 Stat. 1462, 5 U.S.C. 5304, 5305, and 5553, and E.O. 12786, 56 FR 67453, December 30, 1991, 3 CFR 1991 Comp., p. 376;

Subpart B also issued under 5 U.S.C. 5303(g), 5333, 5334(a), and 7701(b)(2);

Subpart C also issued under section 404 of FEPCA, 104 Stat. 1466, section 3(7) of Pub. L. 102–378 (October 2, 1992), section 302 of FEPCA, 104 Stat. 1462, and 5 U.S.C. 5304, 5305, and 5553;

Subpart D also issued under 5 U.S.C. 5335(g) and 7701(b)(2);

Subpart E also issued under 5 U.S.C. 5336;

Subpart F also issued under 5 U.S.C. 5304, 5305(g)(1), and 5553, and E.O. 12883, 58 FR 63281, November 29, 1993, 3 CFR 1993 Comp., p. 682.

4. In § 531.101, the definition of *employee* is revised to read as follows:

§ 531.101 Definitions.

* * * * *

Employee means an employee in a position to which subchapter III of chapter 53 of title 5, United States Code, applies, whose official duty station is located in an interim geographic adjustment area, including an employee in a position authorized by § 213.3102(w) of this chapter whose rate of basic pay is established under the General Schedule.

* * * * *

5. In § 531.202, the first sentence of paragraph (e) is revised to read as follow:

§ 531.202 Definitions.

* * * * *

(e) *GM employee* means an employee who was covered by the Performance Management and Recognition System under chapter 54 of title 5, United States Code, on October 31, 1993 (and therefore became covered on November 1, 1993, by section 4 of Pub. L. 103–89, the Performance Management and Recognition System Termination Act of 1993), and who continues thereafter to occupy a position as a supervisor or management official (as defined in paragraphs (10) and (11) of section 7103(a) of title 5, United States Code) in the same grade of the General Schedule and in the same agency without a break in service of more than 3 calendar days.* * *

* * * * *

6. In § 531.203, the first sentence of paragraph (c)(2) introductory text is revised, and a new paragraph (g) is added to read as follows:

§ 531.203 General provisions.

* * * * *

(c) * * *

(2) The maximum rate of basic pay that may be paid a GM employee (as defined in § 531.202) shall be determined as follows: * * *

* * * * *

(g) *Status as a GM employee.* (1) An employee retains status as a GM employee (as defined in § 531.202) when detailed to any position or when reassigned to another General Schedule position in which the employee continues to be a supervisor or management official (as defined in paragraphs (10) and (11) of section 7103(a) of title 5, United States Code).

(2) An employee permanently loses status as a GM employee if the employee is promoted (including a temporary or term promotion), transferred, reduced in grade, reassigned to a position in which the employee will no longer be a supervisor or management official, or has a break in service of more than 3 calendar days.

7. In § 531.204, paragraphs (c) through (e) are redesignated as paragraphs (d) through (f), respectively; a new paragraph (c) is added; and newly redesignated paragraph (d), the introductory text of newly redesignated paragraph (e), newly redesignated paragraph (e)(1), and newly redesignated paragraph (f) are revised to read as follows:

§ 531.204 Special provisions.

* * * * *

(c) *Expiration or termination of temporary promotions.* (1) On expiration or termination of a temporary promotion when an employee is returned to the lower grade, an agency must recompute the employee's rate of basic pay for the lower grade as if the employee had not been temporarily promoted unless the agency sets pay at a higher rate under § 531.203(d).

(2) In the case of an employee whose rate of basic pay would otherwise fall between two steps of General Schedule grade or applicable special rate range, the rate of basic pay of the employee must be increased to the rate for the next higher step of the grade or special rate range.

(d) *Rate of basic pay on acquiring status as a GM employee.* On acquiring status as a GM employee (as defined in § 531.202) on November 1, 1993, an employee shall continue to receive the rate of basic pay that was payable on October 31, 1993.

(e) *Rate of basic pay on loss of status as a GM employee.* On loss of status as a GM employee (as defined in § 531.202) under § 531.203(g)(2), an employee shall receive (except as provided in paragraph (f) of this section) his or her existing rate of basic pay, plus any of the following adjustments that may be applicable, in the order specified:

(1) The amount of any annual adjustment under section 5303 of title 5, United States Code, to which the employee would otherwise be entitled on that date or, for an employee subject to special pay rates, the amount of any pay adjustment made on that date under section 5305 of title 5, United States Code, and part 530 of this chapter;

* * * * *

(f) *Special exceptions.* Paragraphs (e)(1) through (4) of this section do not apply to any employee who loses status as a GM employee (as defined in § 531.202) under § 531.203(g)(2) as a result of—

(1) An action taken for disciplinary or performance related reasons;

(2) The expiration or termination of a temporary promotion; or

(3) A reduction in grade at the employee's request.

8. In § 531.205, paragraph (a)(2)(i) introductory text and paragraphs (a)(2)(ii) through (iv) are revised to read as follows:

§ 531.205 Pay schedule conversion rules at the time of an annual pay adjustment under 5 U.S.C. 5303.

(a) * * *

(2)(i) Except as provided in paragraphs (a)(2)(ii) through (iv) of this section, an agency shall determine the annual pay adjustment under 5 U.S.C. 5303 for a GM employee (as defined in § 531.202) as follows:

* * * * *

(ii) The rate of basic pay of an employee which is at the minimum or maximum of the rate range in effect on the day preceding the pay adjustment shall be adjusted to the minimum or maximum of the new rate range, respectively.

(iii) The rate of basic pay of an employee which is less than the minimum rate of the rate range of the employee's position shall be increased by the full amount of the annual pay adjustment under 5 U.S.C. 5303 applicable to the rate range of the grade of the employee's position.

(iv) An employee who is receiving retained pay shall receive one-half of the annual pay adjustment under 5 U.S.C. 5303, as required by 5 U.S.C. 5363(a).

* * * * *

9. In § 531.401, paragraph (d) is revised to read as follows:

§ 531.401 Principal authorities.

* * * * *

(d) Section 4 of the Performance Management and Recognition System Termination Act of 1993 (Pub. L. 103–89) provides that "the Office of Personnel Management shall prescribe regulations necessary for the administration of this section."

10. In § 531.403, the introductory text of the definition of *within-grade increase* is revised to read as follows:

§ 531.403 Definitions.

Within-grade increase is synonymous with the term "step increase" used in

section 5335 of title 5, United States Code, and means—

* * * * *

11. In § 531.405, the introductory paragraphs of (a)(1) and (a)(2) are revised to read as follows:

§ 531.405 Waiting periods for within-grade increase.

(a) *Length of waiting period.* (1) For an employee with a scheduled tour of duty, the waiting periods for advancement to the next higher step in all General Schedule grades (or the next higher rate within the grade, as defined in § 531.403) are:

* * * * *

(2) For an employee without a scheduled tour of duty, the waiting periods for advancement to the next higher step of all General Schedule grades (or the next higher rate within the grade, as defined in § 531.403) are:

* * * * *

12. In § 531.406, paragraphs (b)(2)(i) through (iii) are revised to read as follows:

§ 531.406 Creditable service.

* * * * *

(b) * * *

(2) * * *

(i) Two workweeks in the waiting period for an employee whose rate of basic pay is less than the rate of basic pay for step 4 of the applicable grade;

(ii) Four workweeks in the waiting period for an employee whose rate of basic pay is equal to or greater than the rate of basic pay for step 4 of the applicable grade and less than the rate of basic pay for step 7 of the applicable grade; and

(iii) Six workweeks in the waiting period for an employee whose rate of basic pay is equal to or greater than the rate of basic pay for step 7 of the applicable grade.

* * * * *

13. In § 531.502, the definition of *quality step increase* is revised to read as follows:

§ 531.502 Definitions.

* * * * *

Quality step increase is synonymous with the term "step increase" used in section 5336 of title 5, United States Code, and means an increase in an employee's rate of basic pay from one step or rate of the grade of his or her position to the next higher step of that grade or next higher rate within the grade (as defined in § 531.403) in accordance with section 5336 of title 5, United States Code, section 4 of the Performance Management and Recognition System Termination Act of 1993 (Pub. L. 103–89), and this subpart.

PART 536—GRADE AND PAY RETENTION

14. The authority citation for part 536 continues to read as follows:

Authority: 5 U.S.C. 5361–5366; sec. 7202(f) of the Omnibus Budget Reconciliation Act of 1990 (Pub. L. 101–508), 104 Stat. 1338–336; sec. 4 of the Performance Management and Recognition System Termination Act of 1993, 107 Stat. 981; § 536.307 also issued under 5 U.S.C. 552, Freedom of Information Act, Pub. L. 92–502.

Subpart A—Definitions; Coverage and Applicability

15. In § 536.308, paragraph (a), the introductory text of paragraph (b), and paragraph (b)(3) are revised to read as follows:

§ 536.308 Applicability of retained grade.

(a) Except as provided in paragraph (b) of this section, when an employee is entitled to grade retention, the retained grade shall be treated as the employee's grade for all purposes, including pay and pay administration, retirement, life insurance, and eligibility for training.

(b) The retained grade may not be used—

* * * * *

(3) To determine whether an employee retains status as a GM employee (as defined in § 531.202 of this chapter); or

* * * * *

[FR Doc. 94–19261 Filed 8–9–94; 8:45 am]
BILLING CODE 6325–01–M

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

7 CFR Parts 300 and 319

[Docket No. 93–121–3]

Importation of Fruits and Vegetables

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Final rule.

SUMMARY: We are allowing, under certain conditions, the cold treatment of imported fruits upon arrival at the port of Wilmington, NC. We have determined that in the Wilmington, NC, area, there are climatic and biological barriers that are adequate to prevent the introduction of certain plant pests into the United States in the event they escape from shipments of fruit before undergoing cold treatment. Also, we are deleting the listings of cold treatments in the regulations and replacing them with a reference to the cold treatments in the Plant Protection and Quarantine Treatment Manual, which is incorporated by reference.

EFFECTIVE DATE: September 9, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. Victor Harabin, Head, Permit Unit, Port Operations, Plant Protection and Quarantine, APHIS, USDA, room 631, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782; (301) 436–8645.

SUPPLEMENTARY INFORMATION:

Background

The Fruits and Vegetables regulations, contained in 7 CFR 319.56 through 319.56–8 (referred to below as "the regulations"), prohibit or restrict the importation of fruits and vegetables to prevent the introduction and dissemination of injurious insects, including fruit flies, that are new to or not widely distributed in the United States. The Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture administers these regulations.

Under § 319.56–2d of the regulations, APHIS allows certain fruits to be imported into the United States if they undergo sustained refrigeration (cold treatment) sufficient to kill certain insect pests. Cold treatment temperature and refrigeration period requirements vary according to the type of fruit and the pests involved.

On May 13, 1994, we published in the **Federal Register** (59 FR 24968–24971, Docket No. 93–121–2) a proposal to amend the regulations to allow the cold treatment of imported fruits upon arrival at the port of Wilmington, NC. We also proposed to delete the listings of cold treatments in the regulations and replace them with a reference to the cold treatments in the Plant Protection and Quarantine Treatment Manual, which is incorporated by reference. We also proposed to make a nonsubstantive editorial change.

We solicited comments concerning our proposal for a 30-day comment period ending June 13, 1994. We received two comments by that date. One, from a State agency, supports the rule. The other comment, from a port authority, asked that we continue to consider allowing cold treatment to be conducted at Gulfport, MS. We are still considering whether to allow cold treatment to be conducted at Gulfport. Therefore, based on the rationale set forth in the proposed rule and in this document, we are adopting the provisions of the proposal as a final rule without change.

Executive Order 12866 and Regulatory Flexibility Act

This rule has been reviewed under Executive Order 12866. The rule has been determined to be not significant for purposes of Executive Order 12866, and, therefore, has not been reviewed by the Office of Management and Budget.

We are allowing, under certain conditions, the cold treatment of imported fruit upon arrival at the port of Wilmington, NC. As a result of this action, a number of different fruits could be imported into Wilmington, NC. Specifically, officials of the North Carolina State Ports Authority in Wilmington, NC, anticipate that apples, grapes, and pears from Argentina, Brazil, and South Africa will be imported and cold treated at the port of Wilmington, NC.

Approximately 20 million pounds of each fruit could be imported annually into Wilmington, NC, as a result of this action, though we anticipate the amount will be much smaller. While some of the fruit arriving at Wilmington, NC, will be imported in addition to the present volume of annual imports into the United States, some will be shipments diverted from other ports also approved to conduct cold treatment on arrival. In the following analysis of the potential impact of this action on domestic producers of apples, grapes and pears, in order to demonstrate the greatest possible economic impact, we have assumed that the maximum amount of fruit will be imported into Wilmington, NC, for cold treatment, and further, that those commodities will be imported in addition to the present volume of annual imports into the United States.

Also in the following analysis, we have used published price flexibilities to estimate the potential economic effects of allowing apples, grapes, and pears to be cold treated at Wilmington, NC; flexibilities are used to estimate relationships between changes in supply and subsequent changes in price.

Apples

In 1987, 36,718 farms in the United States, of which 1,186 were in North Carolina, harvested apples. Although it is not known how many of these farms could be classified as small entities (annual gross receipts of $0.5 million or less, according to Small Business Administration (SBA) size standards), it is likely that most would. In 1992, domestic farms produced almost 5.78 billion pounds of apples for the fresh market, with an estimated value of $1.13 billion.

If the volume of apples imported into Wilmington, NC, for cold treatment were to reach 20 million pounds, it would constitute about 7.5 percent of current total imports into the United States, about 0.35 percent of current domestic production and about 0.33 percent of the current total apple supply in the United States (domestic and imports).

Assuming that a 0.33 percent increase in the supply of apples would lead to a decrease of about 0.20 percent in the domestic price of apples (using a price flexibility for apples of -0.590, based on all Eastern States' sales of North Carolina apples), we estimate that this increase in supply would result in a price decrease of about $0.038 per hundredweight (cwt), or $0.00038 per pound, from an original price of $0.195 per pound. As a result of the price decrease, there could be a decrease in total revenue to U.S. apple producers of about $2.20 million, which is roughly 0.20 percent of the original total revenue of $1.13 billion. We anticipate, therefore, that allowing apples to be cold treated at Wilmington, NC, will not have a significant economic impact on domestic producers or other small entities.

Grapes

In 1987, 23,236 farms in the United States, of which 286 were in North Carolina, harvested apples. In 1992 domestic farms produced about 1.54 billion pounds of grapes for the fresh market, with an estimated value of $327 million. Although it is not known how many of these farms could be classified as small entities (annual gross receipts of $0.5 million or less, according to SBA size standards), it is likely that most would.

If the volume of grapes to be imported were to reach 20 million pounds, it would constitute about 2.9 percent of current total imports to the United States, about 1.3 percent of current domestic production and about 0.89 percent of the current total grape supply in the United States (domestic and imports).

Assuming that a 0.89 percent increase in the supply of grapes would lead to a decrease of about 0.88 percent in the domestic price of grapes (using a price flexibility for California grapes of -0.981), we estimate that this increase in supply would result in a price decrease of about $3.73 per ton, or $0.0019 per pound, from an original price of $425.62 per ton. As a result of the price decrease, there could be a decrease in total revenue to U.S. grape producers of about $2.9 million, which is roughly 0.88 percent of the original total revenue of $327 million. We anticipate, therefore, that allowing grapes to be cold treated at Wilmington, NC, will not have a significant economic impact on domestic producers or other small entities.

Pears

In 1987, 10,092 farms in the United States, 88 of which were in North Carolina, harvested pears. In 1992, domestic farms produced about 890 million pounds of pears for the fresh market, with an estimated value of $168 million. Although it is not known how many of these farms could be classified as small entities (annual gross receipts of $0.5 million or less, according to SBA size standards), it is likely that most would.

If the volume of pears to be imported were to reach 20 million pounds, it would constitute about 15.4 percent of current total imports to the United States, about 2.2 percent of current domestic production and about 2.0 percent of the current total pear supply in the United States (domestic and imports).

Assuming that a 2.0 percent increase in the supply of pears would lead to a decrease of about 1.2 percent in the domestic price of pears (using a price flexibility for California pears of -0.609), we estimate that this increase in supply would result in a price decrease of about $4.51 per ton, or $0.0023 per pound, from an original price of $377.61 per ton. As a result of the price decrease, there could be a decrease in total revenue to U.S. pear producers of about $2.0 million, which is roughly 1.19 percent of the original total revenue of $168 million. We anticipate, therefore, that allowing pears to be cold treated at Wilmington, NC, will not have a significant economic impact on domestic producers or other small entities.

Therefore, in light of the preceding analyses (which estimate greatest possible, and thus highly unlikely, economic effects), as well as our expectation that most imports of fruit to Wilmington, NC, for cold treatment will occur during the off-season for domestic production, we anticipate that this action will not have a significant economic impact on domestic producers of apples, grapes, and pears, or other small entities.

Furthermore, we anticipate that allowing cold treatment at the port of Wilmington, NC, could have beneficial economic effects. Importers who routinely transport fruit to the Southeastern United States could benefit from this action due to lower transportation costs. Freight companies and shipping companies in North Carolina, as well as the local economy

might also benefit. Also, consumers are likely to gain from the increased selection of products and any price decreases, albeit small, that occur with increases in supply.

Under these circumstances, the Administrator of the Animal and Plant Health Inspection Service has determined that this action will not have a significant economic impact on a substantial number of small entities.

Executive Order 12778

This final rule allows cold treatment of certain fruits to be conducted at the port of Wilmington, NC. State and local laws and regulations regarding the importation of fruits under this rule will be preempted while the fruits are in foreign commerce. Fresh fruits are generally imported for immediate distribution and sale to the consuming public, and will remain in foreign commerce until sold to the ultimate consumer. The question of when foreign commerce ceases in other cases must be addressed on a case-by-case basis. No retroactive effect will be given to this rule, and this rule will not require administrative proceedings before parties may file suit in court challenging this rule.

Paperwork Reduction Act

This final rule contains no information collection or recordkeeping requirements under the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

List of Subjects

7 CFR Part 300

Incorporation by reference, Plant diseases and pests, Quarantine.

7 CFR Part 319

Bees, Coffee, Cotton, Fruits, Honey, Imports, Incorporation by reference, Nursery Stock, Plant diseases and pests, Quarantine, Reporting and recordkeeping requirements, Rice, Vegetables.

Accordingly, title 7, chapter III, of the Code of Federal Regulations is amended as follows:

PART 300—INCORPORATION BY REFERENCE

1. The authority citation for part 300 is revised to read as follows:

Authority: 7 U.S.C. 150ee, 154, 161, 162, 167; 7 CFR 2.17, 2.51, and 371.2(c).

2. In § 300.1, paragraph (a) is revised to read as follows:

§ 300.1 Materials incorporated by reference.

(a) The Plant Protection and Quarantine Treatment Manual, which was revised and reprinted November 30, 1992, and includes all revisions through July 1994, has been approved for incorporation by reference in 7 CFR chapter III by the Director of the Office of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

* * * * *

PART 319—FOREIGN QUARANTINE NOTICES

3. The authority citation for part 319 continues to read as follows:

Authority: 7 U.S.C. 150dd, 150ee, 150ff, 151–167, 450; 21 U.S.C. 136 and 136a; 7 CFR 2.17, 2.51, and 371.2(c).

4. In § 319.56–2d, paragraph (a) is revised to read as follows:

§ 319.56–2d Administrative instructions for cold treatments of certain imported fruits.

(a) *Treatments authorized.* Fresh fruits imported in accordance with this subpart and required under this subpart to receive cold treatment as a condition of entry must be cold treated in accordance with the Plant Protection and Quarantine (PPQ) Treatment Manual, which is incorporated by reference at § 300.1 of this chapter. The cold treatments listed in the PPQ Treatment Manual are authorized for any fruit required to be cold treated under this subpart.

* * * * *

§ 319.56–2d [Amended]

5. In § 319.56–2d, paragraph (b)(1), the second sentence is amended by removing the phrase "port of New York or such other northern ports as he may hereafter designate" and adding in its place the phrase "following ports: the port of Wilmington, NC; Atlantic ports north of, and including, Baltimore, MD; ports on the Great Lakes and St. Lawrence Seaway; Canadian border ports on the North Dakota border and east of North Dakota; and, for air shipments, Washington, DC, at Baltimore-Washington International and Dulles International airports".

6. In § 319.56–2d, headings are added at the beginning of paragraphs (b)(5)(i) through (b)(5)(iii), and a new paragraph (b)(5)(iv) is added to read as follows:

§ 319.56–2d Administrative instructions for cold treatments of certain imported fruits.

* * * *

(b) * * *

(5) Cold treatment after arrival. (i) *Delivery.** * *

(ii) *Precooling and refrigeration.** * *

(iii) *Customs.** * *

(iv) *Special requirements for the port of Wilmington, NC.* Shipments of fruit arriving at the port of Wilmington, NC, for cold treatment, in addition to meeting all of the requirements in paragraphs (b)(5)(i) through (b)(5)(iii) of this section, must meet the following special conditions:

(A) Bulk shipments (those shipments which are stowed and unloaded by the case or bin) of fruit must arrive packaged in fly-proof packaging that prevents the escape of adult, larval, or pupal fruit flies.

(B) Bulk and containerized shipments of fruits and vegetables must be cold-treated within the port of Wilmington, NC, that is, the area over which the Bureau of Customs is assigned the authority to accept entries of merchandise, to collect duties, and to enforce the various provisions of the customs and navigation laws in force.

(C) Advance reservations for cold treatment space at the port of Wilmington, NC, must be made prior to the departure of a shipment from its port of origin.

* * * * *

§ 319.56–2u [Removed and Reserved]

7. Section 319.56–2u is removed and reserved.

§ 319.56–2v [Amended]

8. In § 319.56–2v, paragraph (b), the third sentence is amended by removing the phrase "North Atlantic ports north of and including Baltimore, MD" and adding in its place the phrase "ports listed in § 319.56–2d(b)(1) of this subpart".

9. Section 319.56–2x is amended as follows:

a. In paragraph (a), the table is amended for the Israel entry by adding, in alphabetical order, a new commodity to read as set forth below.

b. In paragraph (b), the first sentence is amended by adding the phrase "or the port of Wilmington, NC," immediately before the word "if".

§ 319.56–2x Administrative instructions: conditions governing the entry of certain fruits and vegetables for which treatment is required.

(a) * * *

Country/ locality	Common name	Botanical name	Plant part(s)
•	•	•	•
Israel			
•	•	•	•
	Pummelo	*Citrus grandis.*	Fruit
•	•	•	•

Done in Washington, DC, this 2nd day of August 1994.

Lonnie J. King,

Acting Administrator, Animal and Plant Health Inspection Service.

[FR Doc. 94–19511 Filed 8–9–94; 8:45 am]

BILLING CODE 3410–34–P

9 CFR Part 160

[Docket No. 93–033–2]

Veterinary Accreditation

AGENCY: Animal and Plant Health Inspection Service, USDA.

ACTION: Final rule.

SUMMARY: We are amending the regulations concerning Federal accreditation of veterinarians to add a definition of "sign." Adding this definition will clarify that accredited veterinarians are prohibited from authorizing other persons to sign certain official documents. We have determined that this change is necessary to maintain the integrity of our veterinary accreditation program.

EFFECTIVE DATE: September 9, 1994.

FOR FURTHER INFORMATION CONTACT: Dr. J. A. Heamon, Staff Veterinarian, Sheep, Goat, Equine, and Poultry Diseases Staff, Veterinary Services, APHIS, USDA, room 700, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782, (301) 436–6954.

SUPPLEMENTARY INFORMATION:

Background

The regulations in 9 CFR parts 160, 161, and 162 pertain to the Animal and Plant Health Inspection Service's (APHIS) veterinary accreditation program. Through this program, APHIS authorizes veterinarians in private practice to perform certain official services and duties on behalf of APHIS Veterinary Services officials. These responsibilities include such activities as examining livestock for clinical signs of disease, vaccinating animals for brucellosis, drawing and shipping blood for testing, and preparing health certificates required for domestic or international movement.

Section 161.3 (hereafter referred to as the regulations) sets forth the standards for accredited veterinarian duties. The regulations cover several requirements and prohibitions regarding the preparation of official forms, certificates, records and reports. The regulations use the term "sign." As used in the regulations, "sign" means that an accredited veterinarian signs a document, in his or her own hand. However, "sign" is not defined in the regulations. This has led to some confusion concerning the signature requirements.

Therefore, to clarify the regulations, we published in the **Federal Register** on March 18, 1994 (58 FR 12863–12864, Docket No. 93–033–1), a proposal to amend the regulations to add a definition of "sign."

We solicited comments concerning our proposal for a 60-day comment period ending May 17, 1994. We received two comments by that date. They were from a state department of agriculture and from a veterinary medical association. One commenter supported the proposed rule. The other commenter objected to the proposed rule, saying it is the prerogative of business owners, including veterinarians, to authorize other individuals to sign documents using the business owner's name.

We are not making any changes in the rule based on this comment. A business owner's right to authorize others to sign documents is not unlimited. Accredited veterinarians are authorized by the Federal Government to perform certain functions on behalf of the Federal Government. These include signing documents. Veterinarians are accredited only if they meet certain standards. Other persons, to whom veterinarians might delegate their responsibilities under the accreditation program, might not meet the Federal Government's accreditation standards. This could lead to foreign animal health officials losing confidence in the integrity of the veterinary accreditation program. This, in turn, could result in the loss of export markets for U.S. livestock.

Therefore, based on the rationale set forth in the proposed rule and in this document, we are adopting the provisions of the proposal as a final rule without change.

Executive Order 12866 and Regulatory Flexibility Act

This final rule has been reviewed under Executive Order 12866. The rule has been determined to be not significant for purposes of Executive Order 12866, and, therefore, has not been reviewed by the Office of Management and Budget.

This final rule will merely clarify that accredited veterinarians must sign official documents in their own hand. We do not anticipate that this final rule will have any economic effect whatsoever.

Under these circumstances, the Administrator of the Animal and Plant Health Inspection Service has determined that this action will not have a significant economic impact on a substantial number of small entities.

Executive Order 12372

This program/activity is listed in the Catalog of Federal Domestic Assistance under No. 10.025 and is subject to Executive Order 12372, which requires intergovernmental consultation with State and local officials. (See 7 CFR part 3015, subpart V.)

Executive Order 12778

This rule has been reviewed under Executive Order 12778, Civil Justice Reform. This rule: (1) Preempts all State and local laws and regulations that are in conflict with this rule; (2) has no retroactive effect; and (3) does not require administrative proceedings before parties may file suit in court challenging this rule.

Paperwork Reduction Act

This final rule contains no information collection or recordkeeping requirements under the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*).

List of Subjects in 9 CFR Part 160

Veterinarians.

Accordingly 9 CFR part 160 is amended as follows:

PART 160—DEFINITION OF TERMS

1. The authority citation for part 160 continues to read as follows:

Authority: 15 U.S.C. 1828; 21 U.S.C. 105, 111–114, 114a, 114a-1, 115, 116, 120, 121, 125, 134b, 134f, 612, and 613; 7 CFR 2.17, 2.51, and 371.2(d).

2. Section 160.1 is amended by adding a definition of *Sign*, in alphabetical order to read as follows:

§ 160.1 Definitions.

* * * * *

Sign. For an accredited veterinarian, to put his or her signature in his or her own hand on a certificate, form, record or report. No certificate, form, record or report is signed if:

(1) Someone other than the accredited veterinarian has signed it on behalf of or in the name of the accredited

veterinarian, regardless of the authority granted them by the accredited veterinarian; or

(2) if any mechanical device has been used to affix the signature.

* * * * *

Done in Washington, DC, this 20th day of June 1994.

Alex B. Thiermann,

Acting Administrator, Animal and Plant Health Inspection Service.

[FR Doc. 94–19510 Filed 8–9–94; 8:45 am]

BILLING CODE 3410–34–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 93–SW–20–AD; Amendment 39–8985; AD 94–15–14]

Airworthiness Directives; Bell Helicopter Textron, Inc. Model 214B, 214B–1, and 214ST Helicopters

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Bell Helicopter Textron, Inc. Model 214B, 214B–1, and 214ST helicopters, that establishes a mandatory retirement life of 60,000 high-power events for the main rotor trunnion (trunnion), which is currently not a life-limited part. This amendment is prompted by the manufacturer's analysis and retesting that has shown that frequent takeoffs and external load lifts (high-power events) shorten the life of the trunnion. The actions specified by this AD are intended to prevent fatigue failure of the trunnion, loss of the main rotor, and subsequent loss of control of the helicopter.

EFFECTIVE DATE: September 14, 1994.

FOR FURTHER INFORMATION CONTACT: Mr. Lance Gant, Aerospace Engineer, Rotorcraft Certification Office, FAA, Rotorcraft Directorate, ASW–170, Fort Worth, Texas 76137, telephone (817) 222–5141, fax (817) 222–5959.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to Bell Helicopter Textron, Inc. Model 214B, 214B–1, and 214ST helicopters was published in the **Federal Register** on January 5, 1994 (59 FR 556). That action proposed to establish a mandatory retirement life of 60,000 high-power events for the main rotor trunnion (trunnion), part number (P/N) 214–010–230–101, which is currently not a life-limited part. High-power events are takeoffs and external load lifts.

Interested persons have been afforded an opportunity to participate in the making of this amendment. No comments were received on the proposal or the FAA's determination of the cost to the public. However, the FAA has added a sentence to paragraph (d) of this AD dealing with the retirement life of this part to make it clear that the retirement life established is 60,000 high-power events; but, since this AD establishes a new method of determining the retirement life, those trunnions that have 59,400 or more high-power events need not be retired until on or before the accumulation of an additional 600 high-power events. The FAA has determined that air safety and the public interest require the adoption of the rule as proposed with this change.

The FAA has determined that this change will not increase the scope of the AD. However, the FAA has performed a more detailed cost analysis and has determined that, when factoring in the creation and maintenance of the component history card or equivalent record, the anticipated costs are $9,900 higher than the proposed amount for the first year and $8,525 higher than the proposed amount for each subsequent year. In the proposal, the cost of this AD was estimated to be $29,523 each year.

The FAA estimates that 15 helicopters of U.S. registry will be affected by this AD, and that (1) it will take approximately 16 work hours per helicopter to replace the affected part due to the new method of determining the retirement life required by this AD; (2) it will take approximately 2 work hours per helicopter to create the component history card or equivalent record (record); (3) it will take approximately 10 work hours per helicopter to maintain the record each year; and (4) the average labor rate is $55 per work hour. Required parts will cost approximately $10,929 per helicopter. Based on these figures, the total cost impact of the AD on U.S. operators for the first year is estimated to be $39,423 and each subsequent year to be $38,048, assuming replacement of the trunnion in one-sixth of the fleet each year, and creation and maintenance of the records for all the fleet the first year and creation of one-sixth of the records and maintenance of the records for all the fleet each subsequent year.

The regulations adopted herein will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. This AD and any related information may be examined in the Rules Docket at the Federal Aviation Administration (FAA), Office of the Assistant Chief Counsel, 2601 Meacham Blvd., Room 663, Fort Worth, Texas.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding a new airworthiness directive to read as follows:

AD 94–15–14 Bell Helicopter Textron, Inc.: Amendment 39–8985. Docket Number 93–SW–20–AD.

Applicability: Model 214B, 214B–1, and 214ST helicopters, equipped with main rotor trunnion (trunnion), part number (P/N) 214–010–230–101, certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To prevent fatigue failure of the trunnion as a result of takeoffs and external load lifts (high-power events), that could result in loss of the main rotor and subsequent loss of the helicopter, accomplish the following:

(a) Within the next 25 hours' time-in-service (TIS) after the effective date of this airworthiness directive (AD), accomplish the following:

(1) Create a component history card or an equivalent record for the affected trunnion.

(2) Determine the actual TIS of the trunnion from maintenance records, if possible. If the actual TIS cannot be determined, use a TIS of 900 hours per year. Prorate the hours for a partial year.

(3) For Model 214B and 214B-1 helicopters, determine and record the accumulated high-power events on the trunnion as follows:

(i) If the number of high-power events is unknown, assign 12 high-power events for each hour TIS obtained in accordance with paragraph (a)(2).

(ii) If the number of high-power events is known, divide that number by 2 and record the resulting number as the total accumulated high-power events.

(4) For Model 214ST helicopters, determine and record the accumulated high-power events on the trunnion as follows:

(i) If the number of high-power events is unknown, assign 11 high-power events for each hour TIS obtained in accordance with paragraph (a)(2).

(ii) If the number of high-power events is known, record that number as the total accumulated high-power events.

(b) After the effective date of this AD, continue to record high-power events. For Model 214B and 214B-1 helicopters, divide the number of high-power events as they occur by 2 and add the resulting number to the previously recorded sum. For Model 214ST helicopters, add the high-power events as they occur to the previously recorded sum.

(c) Remove the trunnion and replace it with an airworthy trunnion in accordance with the following:

(1) For each trunnion with 59,400 or more high-power events, replace with an airworthy trunnion on or before the accumulation of an additional 600 high-power events.

(2) For each trunnion with less than 59,400 high-power events, replace the trunnion with an airworthy trunnion on or before attaining 60,000 high-power events.

(d) This AD revises the helicopter Airworthiness Limitations Section of the maintenance manual by establishing a new retirement life for the trunnion of 60,000 high-power events. However, trunnions with 59,400 or more high-power events need not be retired until on or before the accumulation of an additional 600 high-power events.

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used when approved by the Manager, Rotorcraft Certification Office, FAA, Rotorcraft Directorate. Operators shall submit their requests through an FAA Principal Maintenance Inspector, who may concur or comment and then send it to the Manager, Rotorcraft Certification Office.

Note: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Rotorcraft Certification Office.

(f) Special flight permits may be issued in accordance with §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the helicopter to a location where the requirements of this AD can be accomplished.

(g) This amendment becomes effective on September 14, 1994.

Issued in Fort Worth, Texas, on July 20, 1994.

James D. Erickson,

Manager, Rotorcraft Directorate, Aircraft Certification Service.

[FR Doc. 94-19401 Filed 8-9-94; 8:45 am]

BILLING CODE 4910-13-P

14 CFR Part 39

[Docket No. 94-NM-49-AD; Amendment 39-8999; AD 94-17-04]

Airworthiness Directives; Airbus Industrie Model A300 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; rescission.

SUMMARY: This amendment rescinds 14 Airworthiness Directives (AD), which are applicable to all Airbus Industrie Model A300 series airplanes. Those AD's require repetitive inspections to detect fatigue cracks in certain areas of the fuselage, wings, and horizontal stabilizer; and repair, if necessary. The requirements of those AD's were intended to prevent reduced structural capability of the fuselage, wings, and horizontal stabilizer. Since the issuance of those AD's, the FAA has issued an AD that requires the accomplishment of certain inspections or modifications that terminate the requirements of the 14 AD's issued previously.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Steve Slotte, Aerospace Engineer, Standardization Branch, ANM-113, FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington 98055-4056; telephone (206) 227-2797; fax (206) 227-1320.

SUPPLEMENTARY INFORMATION: In 1989 and 1990, the Federal Aviation Administration (FAA) issued the following 14 AD's, applicable to certain Airbus Industrie Model A300 series airplanes:

AD No.	Amendment No.	Federal Register citation	Date published in Federal Register
89-25-07	39-6404	54 FR 49267	Nov. 30, 1989.
89-26-03	39-6417	54 FR 50487	Dec. 7, 1989.
90-02-20	39-6468	55 FR 999	Jan. 11, 1990.
90-02-21	39-6482	55 FR 1579	Jan. 17, 1990.
90-03-01	39-6483	55 FR 2231	Jan. 23, 1990.
90-03-14	39-6491	55 FR 2634	Jan. 26, 1990.
90-06-01	39-6533	55 FR 8125	Mar. 7, 1990.
90-06-05	39-6536	55 FR 8115	Mar. 7, 1990.
90-06-08	39-6535	55 FR 8119	Mar. 7, 1990.
90-06-11	39-6534	55 FR 8121	Mar. 7, 1990.
90-06-15	39-6542	55 FR 10042	Mar. 19, 1990.
90-06-17	39-6543	55 FR 10044	Mar. 19, 1990.
90-07-03	39-6552	55 FR 10600	Mar. 22, 1990.
90-08-19	39-6576	55 FR 13758	Apr. 12, 1990.

Those AD's require repetitive inspections to detect fatigue cracks in certain areas of the fuselage, wings, and horizontal stabilizer; and repair, if necessary. Those actions were prompted by full-scale fatigue testing by the airplane manufacturer, which revealed cracking in certain areas of the fuselage, wings, and horizontal stabilizer. Those conditions, if not corrected, could result in reduced structural capability of the fuselage, wings, and horizontal stabilizer.

Since the issuance of those AD's, the FAA has issued AD 93-01-24, amendment 39-8478 (58 FR 6703, February 2, 1993), which requires

supplemental structural inspections to detect fatigue cracking, and repair or replacement, if necessary; or the installation of specific modifications on certain Airbus Industrie Model A300 series airplanes. Paragraph (j) of AD 93–01–24 specifies that accomplishment of the requirements of that AD constitutes terminating action for the 14 AD's listed previously. AD 93–01–24 became effective on March 9, 1993, and the actions specified in that AD were required to be accomplished within one year after that date.

Since the actions required by AD 93–01–24 were required to be accomplished by March 9, 1994, and because such accomplishment constitutes terminating action for the requirements of the 14 AD's listed previously, the FAA has determined that it is necessary to rescind those AD's in order to eliminate redundant requirements.

Since this action rescinds requirements that have been rendered moot by subsequent AD action, it has no adverse economic impact and imposes no additional burden on any person. For the same reason, the FAA has determined that there is no particular public interest in this action. Therefore, notice and public procedures hereon are unnecessary and the rescission may be made effective upon publication in the **Federal Register**.

The Rescission

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing Amendments 39–6404, 39–6417, 39–6468, 39–6482, 39–6483, 39–6491, 39–6533, 39–6536, 39–6535, 39–6534, 39–6542, 39–6543, 39–6552, and 39–6576.

94–17–04 **Airbus Industrie:** Amendment 39–8999. Docket No. 94–NM–49–AD. Rescinds the following AD's:

AD No.	Amendment No.
89–25–07	39–6404
89–26–03	39–6417
90–02–20	39–6468
90–02–21	39–6482
90–03–01	39–6483
90–03–14	39–6491
90–06–01	39–6533
90–06–05	39–6536
90–06–08	39–6535
90–06–11	39–6534
90–06–15	39–6542
90–06–17	39–6543
90–07–03	39–6552
90–08–19	39–6576

Applicability: All Model A300 series airplanes, certificated in any category.

This rescission is effective August 10, 1994.

Issued in Renton, Washington, on August 4, 1994.

James V. Devany,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 94–19479 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–13–U

14 CFR Part 71

[Airspace Docket No. 93–ANE–77]

Establishment of Class E Airspace; Lyndonville, VT

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This action establishes Class E airspace at Lyndonville, VT. This action is a result of a modification of the nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Runway 2 at the Caledonia County Airport which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the NDB SIAP at Caledonia County Airport.

EFFECTIVE DATE: 0901 UTC, October 13, 1994.

FOR FURTHER INFORMATION CONTACT: Charles M. Taylor, Airspace Specialist, System Management Branch, ANE–530, Federal Aviation Administration, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (617) 238–7532; fax (617) 238–7560.

SUPPLEMENTARY INFORMATION:

History

On March 11, 1994, the FAA published a Notice of Proposed Rulemaking (NPRM) to amend part 71 of the Federal Aviation Regulations (14 CFR Part 71) to establish Class E airspace at Lyndonville, VT (59 FR 11565). The proposal was prompted by a modification of the nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Runway 2 at the Caledonia Airport which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the NDB SIAP at Caledonia County Airport. Interested parties were invited to participate in this rulemaking proceeding by submitting written comments on the proposal of the FAA. No comments on the proposal were received.

Class E airspace designations for airspace areas extending upward from 700 feet or more above ground level are published in Paragraph 6005 of the FAA Order 7400.9A dated June 17, 1993, and effective September 16, 1993, which is incorporated by reference in 14 CFR 71.1 (58 FR 36298, July 6, 1993).

The Class E airspace establishment listed in this document will be published in the Order.

The Rule

This amendment of part 71 of the Federal Aviation Regulations establishes the Class E Airspace at Claremont, NH. This action is a result of a modification of the nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Runway 2 at the Caledonia County Airport which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the NDB SIAP at Caledonia County Airport.

The FAA has determined that this regulation involves only an established body of technical regulations for which frequent and routine amendments are necessary to keep these regulations operationally current. It, therefore—(1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated economic cost will be so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, the FAA certifies that this rule will not have a significant economic impact on a substantial

number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

Adoption of the Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—[AMENDED]

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. app. 1348(a), 1354(a), 1510; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963, Comp., p. 389; 49 U.S.C. 106(g); 14 CFR 11.69.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order 7400.9A, Airspace Designations and Reporting Points, dated June 17, 1993, and effective September 16, 1993, is amended as follows:

Paragraph 6005 Class E airspace areas extending upward from 700 feet or more above the surface of the earth.

* * * * *

ANE VT E5 Lyndonville, VT [New]

Lyndonville, Caledonia County Airport, VT, ME
(Lat. 44°34'09" N, long. 72°01'04" W)
Lyndonville NDB
(Lat. 44°30'15" N, long. 72°01'45" W)

That airspace extending upward from 700 feet above the surface within a 6.3-mile radius of the Caledonia County Airport, and within 2.5 miles on each side of the Lyndonville NDB 188° bearing extending from the 6.3-mile radius to 7 miles south of the Lyndonville NDB.

* * * * *

Issued in Burlington, Massachusetts, on August 2, 1994.

Francis J. Johns,

Manager, Air Traffic Division, New England Region.

[FR Doc. 94–19405 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–13–M

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14 CFR Part 71

[Airspace Docket No. 93–ANE–75]

Establishment of Class E Airspace; Eastport, ME

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This action establishes Class E airspace at Eastport, ME. This action is a result of a review of standard instrument approach procedures (SIAP's) for Eastport Municipal Airport, which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the SIAP's.

EFFECTIVE DATE: 0901 UTC, October 13, 1994.

FOR FURTHER INFORMATION CONTACT: Charles M. Taylor, Airspace Specialist, System Management Branch, ANE–530, Federal Aviation Administration, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (617) 238–7532; fax (617) 238–7560.

SUPPLEMENTARY INFORMATION:

History

On March 11, 1994, the FAA published a Notice of Proposed Rulemaking (NPRM) to amend part 71 of the Federal Aviation Regulations (14 CFR part 71) to establish Class E airspace at Eastport, ME (59 FR 11563). The proposal was prompted by a review of proposed standard instrument approach procedures (SIAP's) for Eastport Municipal Airport which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport.

Interested parties were invited to participate in this rulemaking proceeding by submitting written comments on the proposal of the FAA. No comments on the proposal were received.

Class E airspace designations for airspace areas extending upward from 700 feet or more above ground level are published in Paragraph 6005 of FAA Order 7400.9A dated June 17, 1993, and effective September 16, 1993, which is incorporated by reference in 14 CFR 71.1 (58 FR 36298, July 6, 1993).

The Class E airspace establishment listed in this document will be published in the Order.

The Rule

This amendment of part 71 of the Federal Aviation Regulations establishes the Class E airspace at Eastport, ME. This action is a result of a review of proposed standard instrument approach procedures (SIAP's) for Eastport Municipal Airport, which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations at the airport.

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep these regulations operationally current. It, therefore—(1) Is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated economic cost will be so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, the FAA certifies that this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

Adoption of the Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—[AMENDED]

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. app. 1348(a), 1354(a), 1510; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963, Comp., p. 389; 49 U.S.C. 106(g); 14 CFR 11.69.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order 7400.9A, Airspace Designations and Reporting Points, dated June 17, 1993, and effective September 16, 1993, is amended as follows:

Paragraph 6005 Class E airspace areas extending upward from 700 feet or more above the surface.

* * * * *

ANE ME E5 Eastport, ME [New]

Eastport Municipal Airport, ME
(Lat. 45°54'35" N, long. 67°00'44" W)

That airspace extending upward from 700 feet above the surface within a 7.4-mile radius of the Eastport Municipal Airport, excluding that airspace outside of the United States.

* * * * *

Issued in Burlington, Massachusetts, on August 2, 1994.

Francis J. Johns,

Manager, Air Traffic Division, New England Region.

[FR Doc. 94–19404 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–13–M

14 CFR Part 71

[Airspace Docket No. 93–ANE–76]

Establishment of Class E Airspace; Claremont, NH

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This action establishes Class E airspace at Claremont, NH. This action is a result of a review of a nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Claremont Airport, which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations executing that NDB SIAP at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the NDB SIAP at Claremont, NH.

EFFECTIVE DATE: 0901 UTC, October 13, 1994.

FOR FURTHER INFORMATION CONTACT: Charles M. Taylor, Airspace Specialist, System Management Branch, ANE–530, Federal Aviation Administration, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (617) 238–7532; fax (617) 238–7560.

SUPPLEMENTARY INFORMATION:

History

On March 11, 1994, the FAA published a Notice of Proposed Rulemaking (NPRM) to amend part 71 of the Federal Aviation Regulations (14 CFR part 71) to establish Class E airspace at Claremont, NH (59 FR 11564). The proposal was prompted by a review of a proposed nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Claremont Airport, which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations executing that NDB SIAP at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the proposed NDB SIAP at Claremont, NH.

Interested parties were invited to participate in this rulemaking proceeding by submitting written comments on the proposal of the FAA. No comments on the proposal were received.

Class E airspace designations for airspace areas extending upward from 700 feet or more above ground level are published in Paragraph 6005 of FAA Order 7400.9A dated June 17, 1993, and effective September 16, 1993, which is incorporated by reference in 14 CFR 71.1 (58 FR 36298, July 6, 1993).

The Class E airspace establishment listed in this document will be published in the Order.

The Rule

This amendment of part 71 of the Federal Aviation Regulations establishes the Class E airspace at Claremont, NH. This action is a result of a review of a proposed nondirectional beacon (NDB) standard instrument approach procedure (SIAP) for Claremont Airport which showed a need for controlled airspace upward from 700 feet above the surface to contain instrument flight rules (IFR) operations executing that NDB SIAP at the airport. The intended effect of this action is to provide adequate Class E airspace for IFR operators who will be executing the proposed NDB SIAP at Claremont, NH.

The FAA has determined that this regulation involves only an established body of technical regulations for which frequent and routine amendments are necessary to keep these regulations operationally current. It, therefore—(1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) does not warrant preparation of a Regulatory Evaluation as the anticipated economic cost will be so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, the FAA certifies that this rule will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 71

Airspace, Incorporation by reference, Navigation (air).

Adoption of the Amendment

In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

PART 71—[AMENDED]

1. The authority citation for part 71 continues to read as follows:

Authority: 49 U.S.C. app. 1348(a), 1354(a), 1510; E.O. 10854, 24 FR 9565, 3 CFR, 1959–1963, Comp., p. 389; 49 U.S.C. 106(g); 14 CFR 11.69.

§ 71.1 [Amended]

2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order 7400.9A, Airspace Designations and Reporting Points, dated June 17, 1993, and effective September 16, 1993, is amended as follows:

Paragraph 6005 Class E airspace areas extending upward from 700 feet or more above the surface.

* * * * *

ANE NH E5 Claremont, NH [New]

Claremont NDB

(Lat. 43°22'10" N, long. 72°22'16" W)

That airspace extending upward from 700 feet above the surface within a 5.5-mile radius of the Claremont NDB; excluding that airspace within the Springfield, VT and Lebanon, NH class E5 areas.

* * * * *

Issued in Burlington, Massachusetts, on August 2, 1994.

Francis J. Johns,

Manager, Air Traffic Division, New England Region.

[FR Doc. 94–19403 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 74

[Docket No. 92C–0294]

Listing of Color Additives Subject to Certification; D&C Green No. 5

AGENCY: Food and Drug Administration, HHS.

ACTION: Final rule.

SUMMARY: The Food and Drug Administration (FDA) is amending the color additive regulations to provide for the safe use of D&C Green No. 5 for coloring drugs and cosmetics intended for use in the area of the eye. This action is in response to a petition filed by the Cosmetic, Toiletry, and Fragrance Association (CTFA).

DATES: Effective September 12, 1994, except as to any provisions that may be stayed by the filing of proper objections; written objections and requests for a hearing by September 9, 1994.

ADDRESSES: Submit written objections to the Dockets Management Branch (HFA–305), Food and Drug Administration, rm. 1–23, 12420 Parklawn Dr., Rockville, MD 20857.

FOR FURTHER INFORMATION CONTACT: Robert L. Martin, Center for Food Safety and Applied Nutrition (HFS–217), Food and Drug Administration, 200 C St. SW., Washington, DC 20204, 202–254–9519.

SUPPLEMENTARY INFORMATION:

I. Introduction

In a notice published in the Federal Register of August 11, 1992 (57 FR

35833), FDA announced that a color additive petition (CAP 6C0204) had been filed by CTFA, 1101 17th St. NW., suite 300, Washington, DC 20036. The petition proposed that the color additive regulations for D&C Green No. 5 be amended to provide for the safe use of D&C Green No. 5 for coloring drugs and cosmetics intended for use in the area of the eye. The petition was filed under section 706 (currently section 721) of the Federal Food, Drug, and Cosmetic Act (the act) (21 U.S.C. 376) (currently 21 U.S.C. 379e).

II. Regulatory History

The regulatory history of D&C Green No. 5 is summarized in a final rule that was published in the **Federal Register** of June 4, 1982 (47 FR 24278). In that final rule, FDA permanently listed D&C Green No. 5 for use in drugs and cosmetics excluding use in the area of the eye. These actions were taken in response to a color additive petition (CAP 8C0084).

III. Definitions

Section 70.3(s) (21 CFR 70.3(s)) defines the term "area of the eye" as "the area enclosed within the circumference of the supra-orbital ridge and the infra-orbital ridge, including the eyebrow, the skin below the eyebrow, the eyelids and the eyelashes, and conjunctival sac of the eye, the eyeball, and the soft areolar tissue that lies within the perimeter of the infra-orbital ridge." 21 CFR 70.5(a) states that "No listing or certification of a color additive shall be considered to authorize the use of any such color additive in any article intended for use in the area of the eye unless such listing or certification of such color additive specifically provides for such use." The petitioner has requested that the uses for D&C Green No. 5 be expanded to include drug and cosmetic uses in the area of the eye.

IV. The Color Additive

D&C Green No. 5 is principally the disodium salt of 2,2'-[(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)diimino]bis-[5-methylbenzenesulfonic acid] (CAS Reg. No. 4403–90–1). The manufacture of D&C Green No. 5 is accomplished by the sulfonation of D&C Green No. 6 with fuming sulfuric acid. Because D&C Green No. 6 is the starting material in this manufacturing process, the possibility exists that the chemicals used in the synthesis of D&C Green No. 6 may be present in minor amounts in D&C Green No. 5. D&C Green No. 6 is formed by chemically reacting one molecule of quinizarin with two molecules of *p*-toluidine. The significance of these components is that Weisburger et al. have demonstrated that *p*-toluidine is a carcinogen in mice (Ref. 1). Residual amounts of reactants, such as *p*-toluidine and related manufacturing aids, are commonly found among the constituents of many color additives. The presence of such constituents, however, is not unique to color additives. Numerous contaminants are unavoidably present in all chemical products, even in highly purified reagent grade chemicals.

Although D&C Green No. 5 has itself not been shown to cause cancer, it does contain minor amounts of a carcinogenic impurity, *p*-toluidine. The carcinogenicity of *p*-toluidine was discussed in the final rule, published in the of **Federal Register** June 4, 1982 (47 FR 24278), permanently listing D&C Green No. 5 for use in drugs and cosmetics, excluding use in the area of the eye.

V. Determination of Safety

Under section 721(b)(4) of the act (21 U.S.C. 379e(b)(4)), the so-called "general safety clause" for color additives, a color additive cannot be listed for a particular use unless a fair evaluation of the data available to FDA establishes that the color additive is safe for that use. FDA's color additive regulations (§ 70.3(i)) define safe as "convincing evidence that establishes with a reasonable certainty that no harm will result from the intended use of the color additive."

The anticancer or Delaney clause of the Color Additive Amendments (section 721(b)(5)(B) of the act) provides that a noningested color additive shall be deemed unsafe and shall not be listed if, after tests that are appropriate for evaluating the safety of the additive for such use, it is found to induce cancer in man or animal. Importantly, however, the Delaney clause applies to the additive itself and not to constituents of the additive. That is, where an additive itself has not been shown to cause cancer, but contains a carcinogenic impurity, the additive is properly evaluated under the general safety clause using risk assessment procedures to determine whether there is a reasonable certainty that no harm will result from the proposed use of the additive (*Scott* v. *FDA*, 728 F.2d 322 (6th Cir. 1984)).

VI. Safety of the Petitioned Use of the Additive

FDA estimates from the data submitted and other relevant information that the exposure to D&C Green No. 5 from its use in drugs and cosmetics intended for use in the area of the eye, is 0.56 milligrams per person per day (mg/p/d), based upon a maximum frequency of application and maximum quantity applied.

FDA does not ordinarily consider chronic toxicological testing to be necessary to determine the safety of an additive whose use will result in such low exposure levels (Ref. 2), and the agency has not required such testing here. Although the agency does not normally require such testing, chronic studies supporting current listings for the use of D&C Green No. 5 are available in the agency's files, and FDA's safety evaluation for the proposed use of the color additive in drugs and cosmetics intended for use in the area of the eye included a consideration of these studies. Two-year carcinogenicity studies of D&C Green No. 5 showed no indication of carcinogenicity.

FDA has evaluated the safety of this additive under the general safety clause, considering all available data. The agency has used risk assessment procedures to estimate the upper-bound limit of risk presented by *p*-toluidine, the carcinogenic chemical that may be present as an impurity in the additive. The risk evaluation of this chemical has two aspects: (1) Assessment of the exposure to the impurity from the proposed use of the additive, and (2) extrapolation of the risk observed in the animal bioassays to the conditions of probable exposure to humans.

FDA estimates that the maximum total lifetime exposure to *p*-toluidine that will result from the use of D&C Green No. 5 in drugs and cosmetics intended for use in the area of the eye that complies with the applicable specifications is 8.4 nanograms (ng)/p/d. This exposure estimate was based on the use of this color additive in eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara, eye cream, eye shadow base, and eye stick.

The agency used data reported by the National Cancer Institute which demonstrated that *p*-toluidine was carcinogenic for male and female Charles River CD–1 (HaM/ICR derived) mice, causing an increased incidence of hepatomas (liver tumors) (Ref. 1) to estimate the upper-bound limit of lifetime human risk from exposure to this chemical stemming from the proposed use of D&C Green No. 5 as a color additive in drugs and cosmetics intended for use in the area of the eye (Ref. 3).

Based on a potential exposure of 8.4 ng/p/d, FDA estimates that the upper-bound limits of individual lifetime risk from the potential exposure to *p*-toluidine from the proposed use of D&C Green No. 5 as a color additive in eye

area drugs and cosmetics is 2×10^{-9} or 2 in 1 billion (Ref. 4). Moreover, FDA points out that in an earlier determination of the risk from exposure to *p*-toluidine from all other uses of D&C Green No. 5, the agency calculated the upper-bound limits of individual lifetime risk to be in the 1 in 30 million to 1 in 300 million range (47 FR 24278). Thus, the use of D&C Green No. 5 in eye area drugs and cosmetics does not increase this risk in any way. The agency also points out that because of the numerous conservative assumptions used in calculating the exposure estimate, actual lifetime-averaged individual exposure to *p*-toluidine is expected to be substantially less than the worst-case exposure. Therefore, the actual upper-bound limits of risk would be less than that cited above. Thus, the agency concludes that there is a reasonable certainty of no harm from exposure to *p*-toluidine that might result from the proposed use of D&C Green No. 5 for coloring drugs and cosmetics intended for use in the area of the eye.

In its evaluation of the safety of the proposed use of the subject additive, FDA has also considered other safety data submitted previously to support current listings for the use of D&C Green No. 5. These toxicity studies of D&C Green No. 5, involving dogs, rats, and mice, included acute oral toxicity studies, subchronic studies, and chronic toxicity studies in which animals were exposed to the color additive through diet and skin applications, and reproductive toxicity studies. These studies did not produce any evidence that D&C Green No. 5 would be unsafe for the petitioned uses.

In addition, FDA evaluated the ocular toxicity studies that the petitioner provided to support the proposed use of D&C Green No. 5 in drugs and cosmetics intended for use in the area of the eye. Almost all of the animals were free of signs of ocular irritation. The effects noted in most animals that exhibited irritation were slight conjunctival redness or discharge. These irritations were seen sporadically in both control and test animals. Based on its review of these studies, FDA finds that there were no significant adverse clinical findings in the ocular irritation studies.

VII. Conclusions

A. Safety

Based upon the available toxicity data and other relevant considerations discussed above, FDA concludes that there is a reasonable certainty that no harm will result from the use of D&C Green No. 5 as a color additive in drugs and cosmetics intended for use in the area of the eye. The agency also concludes on the basis of available data that the color additive will perform its intended technical effect and thus is suitable for the petitioned uses. The agency, therefore, is amending §§ 74.1205(c)(2) and 74.2205(b) of the color additive regulations to provide for the use of D&C Green No. 5 in drugs and cosmetics intended for use in the area of the eye.

B. Specifications

D&C Green No. 5 is currently produced as a certifiable color additive for use in drugs and cosmetics excluding use in the area of the eye in amounts consistent with current good manufacturing practices in accordance with 21 CFR part 80. Based upon the low level of exposure to *p*-toluidine that results under the current specifications for D&C Green No. 5 in §§ 74.1205 and 74.2205 (21 CFR 74.1205 and 74.2205), the agency concludes that the specifications listed in § 74.1205 are adequate to ensure the safe use of this color additive and to control the amount of *p*-toluidine that may exist as an impurity in the color additive when used in drugs and cosmetics intended for use in the area of the eye.

VIII. Inspection of Documents

In accordance with § 71.15 (21 CFR 71.15), the petition and the documents that FDA considered and relied upon in reaching its decision to approve the petition are available for inspection at the Center for Food Safety and Applied Nutrition (address above) by appointment with the information contact person listed above. As provided in § 71.15, the agency will delete from the documents any materials that are not available for public disclosure before making the documents available for inspection.

IX. Environmental Impact

The agency has carefully considered the potential environmental effects of this action. FDA has concluded that the action will not have a significant impact on the human environment, and that an environmental impact statement is not required. The agency's finding of no significant impact and the evidence supporting that finding, contained in an environmental assessment, may be seen in the Dockets Management Branch (address above) between 9 a.m. and 4 p.m., Monday through Friday.

X. Objections

Any person who will be adversely affected by this regulation may at any time on or before September 9, 1994, file with the Dockets Management Branch (address above) written objections thereto. Each objection shall be separately numbered, and each numbered objection shall specify with particularity the provisions of the regulation to which objection is made and the grounds for the objection. Each numbered objection on which a hearing is requested shall specifically so state. Failure to request a hearing for any particular objection shall constitute a waiver of the right to a hearing on that objection. Each numbered objection for which a hearing is requested shall include a detailed description and analysis of the specific factual information intended to be presented in support of the objection in the event that a hearing is held. Failure to include such a description and analysis for any particular objection shall constitute a waiver of the right to a hearing on the objection. Three copies of all documents shall be submitted and shall be identified with the docket number found in brackets in the heading of this document. Any objections received in response to the regulation may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday. FDA will publish notice of the objections that the agency has received or lack thereof in the **Federal Register**.

XI. References

The following references have been placed on display in the Dockets Management Branch (address above) and may be seen by interested persons between 9 a.m. and 4 p.m., Monday through Friday.

1. Weisburger, E. K. et al., "Testing of Twenty-one Environmental Aromatic Amines or Derivatives for Long-Term Toxicity or Carcinogenicity," *Journal of Environmental Pathology and Toxicology*, 2:325–356, 1978.

2. Kokoski, C. J., "Regulatory Food Additive Toxicology," in "Chemical Safety Regulation and Compliance," edited by F. Homburger and J. K. Marquis, S. Karger, NY, pp. 24–33, 1985.

3. Memorandum of Conference of the Cancer Assessment Committee, "Para-Toluidine," February 24, 1981.

4. Report of the Quantitative Risk Assessment Committee, "Estimation of the Upper-Bound Lifetime Risk from Para-Toluidine in D&C Green No. 5 for Uses Requested in CAP 6C0204, Cosmetic, Toiletry, and Fragrance Association," September 28, 1993.

List of Subjects in 21 CFR Part 74

Color additives, Cosmetics, Drugs.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs, 21 CFR part 74 is amended as follows:

PART 74—LISTING OF COLOR ADDITIVES SUBJECT TO CERTIFICATION

1. The authority citation for 21 CFR part 74 continues to read as follows:

Authority: Secs. 201, 401, 402, 403, 409, 501, 502, 505, 601, 602, 701, 721 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321, 341, 342, 343, 348, 351, 352, 355, 361, 362, 371, 379e).

2. Section 74.1205 is amended by revising paragraph (c)(2) to read as follows:

§ 74.1205 D&C Green No. 5.

* * * * *

(c) * * *

(2) D&C Green No. 5 may be safely used for coloring drugs generally, including drugs intended for use in the area of the eye, in amounts consistent with current good manufacturing practice.

* * * * *

3. Section 74.2205 is amended by revising paragraph (b) to read as follows:

§ 74.2205 D&C Green No. 5.

* * * * *

(b) *Uses and restrictions.* D&C Green No. 5 may be safely used for coloring cosmetics generally, including cosmetics intended for use in the area of the eye, in amounts consistent with current good manufacturing practice.

* * * * *

Dated: August 4, 1994.

Michael R. Taylor,

Deputy Commissioner for Policy.

[FR Doc. 94–19483 Filed 8–9–94; 8:45 am]

BILLING CODE 4160–01–F

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21 CFR Parts 430, 436, and 455

[Docket No. 94N–0184]

Antibiotics Drugs; Rifabutin and Rifabutin Capsules

AGENCY: Food and Drug Administration, HHS.

ACTION: Final rule.

SUMMARY: The Food and Drug Administration (FDA) is amending the antibiotic drug regulations to include accepted standards for a new antibiotic drug, rifabutin, and the use of the antibiotic drug in a dosage form, rifabutin capsules. The manufacturer has supplied sufficient data and information to establish its safety and efficacy.

DATES: Effective September 9, 1994; written comments, notice of participation, and requests for a hearing by September 9, 1994; data, information, and analyses to justify a hearing by October 11, 1994.

ADDRESSES: Submit written comments to the Dockets Management Branch (HFA–305), Food and Drug Administration, rm. 1–23, 12420 Parklawn Dr., Rockville, MD 20857.

FOR FURTHER INFORMATION CONTACT: James Timper, Center for Drug Evaluation and Research (HFD–520), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301–443–6714.

SUPPLEMENTARY INFORMATION: FDA has evaluated data submitted in accordance with regulations promulgated under section 507 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 357), as amended, with respect to a request for approval of (1) a new antibiotic drug, rifabutin, and (2) its use in a dosage form, rifabutin capsules. The agency has concluded that the data supplied by the manufacturer concerning these antibiotic drugs are adequate to establish their safety and efficacy when used as directed in the labeling and that the regulations should be amended in 21 CFR parts 430, 436, and 455 to include accepted standards for these products.

Environmental Impact

The agency has determined under 21 CFR 25.24(c)(6) that this action is of a type that does not individually or cumulatively have a significant effect on the human environment. Therefore, neither an environmental assessment nor an environmental impact statement is required.

Submitting Comments and Filing Objections

This final rule announces standards that FDA has accepted in a request for approval of an antibiotic drug. Because this final rule is not controversial and because when effective it provides notice of accepted standards, FDA finds that notice and comment procedure is unnecessary and not in the public interest. This final rule, therefore, is effective September 9, 1994. However, interested persons may, on or before September 9, 1994, submit written comments to the Dockets Management Branch (address above). Two copies of any comments are to be submitted, except that individuals may submit one copy. Comments are to be identified with the docket number found in brackets in the heading of this document. Received comments may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday.

Any person who will be adversely affected by this final rule may file objections to it and request a hearing. Reasonable grounds for the hearing must be shown. Any person who decides to seek a hearing must file (1) on or before September 9, 1994, a written notice of participation and request for a hearing, and (2) on or before October 11, 1994, the data, information, and analyses on which the person relies to justify a hearing, as specified in 21 CFR 314.300. A request for a hearing may not rest upon mere allegations or denials, but must set forth specific facts showing that there is a genuine and substantial issue of fact that requires a hearing. If it conclusively appears from the face of the data, information, and factual analyses in the request for a hearing that no genuine and substantial issue of fact precludes the action taken by this order, or if a request for a hearing is not made in the required format or with the required analyses, the Commissioner of Food and Drugs will enter summary judgment against the person(s) who request(s) the hearing, making findings and conclusions and denying a hearing. All submissions must be filed in three copies, identified with the docket number appearing in the heading of this document and filed with the Dockets Management Branch.

The procedures and requirements governing this order, a notice of participation and request for a hearing, a submission of data, information, and analyses to justify a hearing, other comments, and grant or denial of a hearing are contained in 21 CFR 314.300.

All submissions under this order, except for data and information prohibited from public disclosure under 21 U.S.C. 331(j) or 18 U.S.C. 1905, may be seen in the Dockets Management Branch (address above) between 9 a.m. and 4 p.m., Monday through Friday.

List of Subjects

21 CFR Part 430

Administrative practice and procedure, Antibiotics.

21 CFR Parts 436 and 455

Antibiotics.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs, 21 CFR parts 430, 436, and 455 are amended as follows:

PART 430—ANTIBIOTIC DRUGS; GENERAL

1. The authority citation for 21 CFR part 430 continues to read as follows:

Authority: Secs. 201, 501, 502, 503, 505, 507, 701 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 321, 351, 352, 353, 355, 357, 371); secs. 215, 301, 351 of the Public Health Service Act (42 U.S.C. 216, 241, 262).

2. Section 430.4 is amended by adding new paragraph (a)(69) to read as follows:

§ 430.4 Definitions of antibiotic substances.

(a) * * *

(69) *Rifabutin.* Rifabutin is an antibiotic substance having the chemical structure described by the following name: (9*S*,12*E*,14*S*,15*R*,16*S*,17*R*,18*R*,19*R*,20*S*,21*S*,22*E*, 24*Z*)-6,16, 18,20-tetrahydroxy-1'-isobutyl-14-methoxy-7,9,15,17,19,21,25-heptamethylspiro[9,4-(epoxypentadeca[1,11,13]trienimino)-2*H*-furo[2',3':7,8]naphth[1,2-d]imidazole-2,4'-piperidine]-5,10,26-(3*H*,9*H*)-trione-16-acetate.

* * * * *

3. Section 430.5 is amended by adding new paragraphs (a)(104) and (b)(106) to read as follows:

§ 430.5 Definitions of master and working standards.

(a) * * *

(104) *Rifabutin.* The term "rifabutin master standard" means a specific lot of rifabutin that is designated by the Commissioner as the standard of comparison in determining the potency of the rifabutin working standard.

(b) * * *

(106) *Rifabutin.* The term "rifabutin working standard" means a specific lot of a homogeneous preparation of rifabutin.

4. Section 430.6 is amended by adding new paragraph (b)(106) to read as follows:

§ 430.6 Definitions of the terms "unit" and "microgram" as applied to antibiotic substances.

* * * * *

(b) * * *

(106) *Rifabutin.* The term "microgram" applied to rifabutin means the rifabutin (potency) contained in 1.022 micrograms of the rifabutin master standard.

PART 436—TESTS AND METHODS OF ASSAY OF ANTIBIOTIC AND ANTIBIOTIC-CONTAINING DRUGS

5. The authority citation for 21 CFR part 436 continues to read as follows:

Authority: Sec. 507 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 357).

6. Section 436.215 is amended by alphabetically adding a new entry to the table in paragraph (b) and by adding new paragraph (c)(18) to read as follows:

§ 436.215 Dissolution test.

* * * * *

(b) * * *

Dosage form	Dissolution medium	Rotation rate[1]	Sampling time(s)	Apparatus
*	*	*	*	*
Rifabutin capsules	900 mL 0.01*N* hydrochloric acid	100	45 min	1
*	*	*	*	*

[1]Rotation rate of basket or paddle stirring element (revolutions per minute).

(c) * * *

(18) *Rifabutin*—(i) *Preparation of the working standard solution.* Accurately weigh approximately 45 milligrams of the rifabutin working standard into a suitable-sized volumetric flask. Dissolve and dilute to volume with 0.01*N* hydrochloric acid (prepared by diluting 5.0 milliliters of hydrochloric acid (37 percent) to 6 liters with distilled water) to obtain a concentration of approximately 13 micrograms rifabutin activity per milliliter.

(ii) *Preparation of sample solutions.* Forty-five minutes after the beginning of the rotation, withdraw a 10-milliliter aliquot from the vessel. Dilute a 2-milliliter portion of the sample to 25 milliliters with 0.01*N* hydrochloric acid.

(iii) *Procedure.* Using a suitable spectrophotometer and 0.01*N* hydrochloric acid as the blank, determine the absorbance of each standard and sample solution at the absorbance maximum at approximately 280 nanometers. Determine the exact position of the absorbance maximum for the particular instrument used.

(iv) *Calculations.* Determine the total amount of rifabutin dissolved as follows:

$$T = \frac{A_U \times c \times d \times 900}{A_S \times 1{,}000}$$

where:

T = Total milligrams of rifabutin activity dissolved;

A_U = Absorbance of sample;

A_S = Absorbance of the standard;

c = Rifabutin activity of the working standard solution in micrograms per milliliter; and

d = Dilution factor of the sample filtrate.

* * * * *

7. New §§ 436.369 and 436.370 are added to subpart F to read as follows:

§ 436.369 Thin layer chromatography test for free *N*-isobutylpiperidone content in rifabutin.

(a) *Equipment*—(1) *Chromatography tank.* A rectangular tank, approximately 23 X 23 X 9 centimeters, with a glass solvent trough on the bottom and a tight-fitting cover.

(2) *Iodine vapor chamber.* A rectangular tank, approximately 23 X 23 X 9 centimeters, with a suitable cover, containing iodine crystals.

(3) *Plates.* Use 20 X 20 centimeter thin layer chromatography plates coated with silica gel 60F 254 or equivalent to a thickness of 250 microns.

(b) *Reagents*—(1) *Developing solvent.* Mix petroleum ether (b.p. 60 to 80 °C) and acetone in volumetric proportions of 100:30, respectively.

(2) *Spray solution.* Prepare a 1 percent solution of soluble starch in water (containing 0.01 percent mercuric iodide).

(c) *Preparation of spotting solutions*—(1) *Sample solution.* Prepare a solution of the rifabutin sample in 1:1 chloroform/methanol to contain 10 milligrams per milliliter.

(2) *Standard solution.* Prepare a solution of *N*-isobutylpiperidone standard in 1:1 chloroform/methanol to contain 1 milligram per milliliter. Transfer aliquots of 0.5, 1.0, 2.0, 5.0, and 10.0 milliliters into separate 100-milliliter volumetric flasks and dilute to volume with 1:1 chloroform/methanol. These solutions contain, respectively, the equivalent of 0.05, 0.1, 0.2, 0.5, and 1.0 percent of *N*-isobutylpiperidone.

(d) *Procedure.* Pour 100 milliliters of developing solvent into the glass trough on the bottom of the unlined chromatography tank. Cover and seal

the tank. Allow it to equilibrate while the plate is being prepared. Prepare a plate as follows: on a line 2.0 centimeters from the base of the thin layer chromatography plate, and at intervals of 2.0 centimeters, apply 10 microliters of each of the standard solutions and the sample solution prepared as directed above. After the spots are thoroughly dry, place the plate into the trough in the bottom of the tank. Cover and tightly seal the tank, allow the solvent front to travel about 15 centimeters from the starting line and then remove the plate from the tank. Air dry the plate. Warm the iodine vapor chamber to vaporize the iodine crystals and place the dry plate in the iodine vapor chamber until the spots are visible (usually about 5 minutes). Remove the plate from the iodine vapor chamber and spray with 1 percent starch solution.

(e) *Evaluation.* Measure the distance the solvent front traveled from the starting line and the distance the spots are from the starting line. Calculate the R_f value by dividing the latter by the former. *N*-isobutylpiperidone has an R_f value of about 0.3. Rifabutin has an R_f value of about 0.1. Compare the size and intensity of any *N*-isobutylpiperidone spots in the sample lane with the *N*-isobutylpiperidone spots in the standard lanes, and report the percentage of *N*-isobutylpiperidone in the sample.

§ 436.370 Spectrophotometric identity test for rifabutin capsules.

(a) *Equipment.* A suitable spectrophotometer capable of recording the ultraviolet spectrum in the 200 to 400 nanometer range, using suitable quartz cells of 1 centimeter pathlength.

(b) *Preparation of working standard and sample solution*—(1) *Working standard solution.* Suspend approximately 200 milligrams of rifabutin working standard in 20 milliliters of methanol and sonicate for approximately 5 minutes. Filter the resulting solution through a suitable 0.5 micrometer filter. Transfer a 2-milliliter aliquot of the filtered solution to a 100-milliliter volumetric flask and fill to volume with methanol. Further dilute with methanol to obtain a solution containing 20 micrograms of rifabutin activity per milliliter.

(2) *Sample solution.* Empty and combine the contents of five capsules. Suspend a quantity of the capsule contents equivalent to 200 milligrams of rifabutin in 20 milliliters of methanol. Sonicate for about 5 minutes and then filter through an appropriate 0.5 micrometer filter. Transfer a 2-milliliter aliquot to a 100-milliliter volumetric flask and dilute to volume with methanol. Further dilute with methanol to obtain a solution containing 20 micrograms of rifabutin activity per milliliter (estimated).

(c) *Procedure.* Using a suitable spectrophotometer equipped with 1.0 centimeter cells and methanol as the blank, determine the absorbance spectra of the working standard and sample solutions over the ultraviolet range of 250 to 300 nanometers.

(d) *Evaluation.* Compare the spectrum of the sample to that of the working standard. The identity of the rifabutin capsules is confirmed by quantitative comparison of the two spectra with an absorbance maximum being observed at about 275 nanometers.

PART 455—CERTAIN OTHER ANTIBIOTIC DRUGS

8. The authority citation for 21 CFR part 455 continues to read as follows:

Authority: Sec. 507 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 357).

9. New § 455.88 is added to subpart A to read as follows:

§ 455.88 Rifabutin.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Rifabutin is an amorphous red-violet powder. It is (9*S*,12*E*,14*S*,15*R*,16*S*,17*R*,18*R*,19*R*,20*S*,21*S*, (9*S*,12*E*,14*S*,15*R*,16*S*,17*R*,18*R*,19*R*,20*S*,21*S*)-6,16,18,20-tetrahydroxy-1′-isobutyl-14-methoxy-7,9,15,17,19,21,25-heptamethylspiro[9,4-(epoxypentadeca[1,11,13]trienimino)-2*H*-furo[2′,3′:7,8]naphth[1,2-d]imidazole-2,4′-piperidine]-5,10,26-(3*H*,9*H*)-trione-16-acetate. It is very slightly soluble in water, sparingly soluble in ethanol, and soluble in chloroform and methanol. It is so purified and dried that:

(i) Its potency is not less than 950 micrograms and not more than 1,020 micrograms of rifabutin activity per milligram on an anhydrous basis.

(ii) Its content for the four major related substances detected by high-performance liquid chromatography (HPLC) is not more than 1.0 percent each. All other unknown related substances are not more than 0.5 percent. The total of all related substances is not more than 3.0 percent.

(iii) Its moisture content is not more than 2.5 percent.

(iv) Its *N*-isobutylpiperidone content is not more than 0.5 percent.

(v) It gives a positive identity test.

(2) *Labeling.* It shall be labeled in accordance with the requirements of § 432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of § 431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on the batch for rifabutin potency, related substances, moisture, *N*-isobutylpiperidone, and identity.

(ii) Samples, if required by the Director, Center for Drug Evaluation and Research: 10 packages each containing approximately 300 milligrams.

(b) *Tests and methods of assay*—(1) *Potency.* Proceed as directed in § 436.216 of this chapter, using ambient temperature, an ultraviolet detection system operating at a wavelength of 254 ± 1 nanometers, an 11 centimeters X 4.7 millimeters (i.d.) column packed with microparticulate (5 to 7 micrometers in diameter) packing material such as octylsilane chemically bonded to porous silica (U.S. Pharmacopeia designation L7), a flow rate of about 1.0 milliliter per minute, and a manual or automatic injector capable of injecting 10 microliters. The retention time for rifabutin is between 9 and 11 minutes. Reagents; working standard, sample, and resolution solutions; system suitability requirements; and calculations are as follows:

(i) *Reagents*—(A) *Hydrochloric acid, 2N.* Dilute 85 milliliters of hydrochloric acid (37 percent) with distilled water to 500 milliliters.

(B) *Potassium dihydrogen phosphate, 0.1M.* Prepare a solution containing 15.4 grams of potassium dihydrogen phosphate monohydrate (potassium phosphate monobasic) per liter of distilled water.

(C) *Sodium hydroxide, 2N.* Dissolve 8 grams of sodium hydroxide pellets in 100 milliliters of distilled water.

(D) *Mobile phase.* Acetonitrile:phosphate buffer, pH 6.5, 50:50. Mix equal quantities of acetonitrile and 0.1*M* potassium dihydrogen phosphate and adjust to an apparent pH of 6.5 ± 0.1 by dropwise addition of 2*N* sodium hydroxide. Filter through a suitable filter capable of removing particulate matter 0.5 micron in diameter and degas it just prior to its introduction into the chromatograph. Slight adjustments of the mobile phase components ratio may be made in order to meet the system suitability requirements described in the system suitability tests in paragraph (b)(1)(iii) of this section.

(ii) *Preparation of working standard, sample, and resolution test solution*—(A) *Working standard solution.* Accurately weigh approximately 25 milligrams of the rifabutin working reference standard into a 50-milliliter volumetric flask. Add 5 milliliters of acetonitrile. Dissolve and dilute to volume with mobile phase and mix to

obtain a solution having a known concentration of about 0.5 milligram of rifabutin per milliliter.

(B) *Sample solution.* Accurately weigh approximately 25 milligrams of sample into a 50-milliliter volumetric flask. Add 5 milliliters of acetonitrile. Dissolve and dilute to volume with mobile phase and mix to obtain a solution containing 0.5 milligram of rifabutin per milliliter (estimated).

(C) *Resolution test solution.* Dissolve approximately 10 milligrams of rifabutin in 2 milliliters of methanol and add 1 milliliter of 2*N* sodium hydroxide. Allow to stand for 3 to 4 minutes and then add 1 milliliter of 2*N* hydrochloric acid. Mix and dilute to 50 milliliters with mobile phase. Store aliquots of this solution in the frozen state for future use.

(iii) *System suitability requirements.* Using the apparatus and conditions described in this section, test the chromatographic system by injecting the resolution test solution. The chromatogram shows one major degradation peak and two minor degradation peaks eluting at relative retention times (RRT) of 0.5–0.6, 0.65–0.75, and 0.8–0.9, respectively, followed by the rifabutin peak.

(A) *Asymmetry factor.* The asymmetry factor (A_S) is satisfactory if it is not less than 1.0 and not more than 4.0 for the rifabutin peak.

(B) *Efficiency of the column.* The absolute efficiency (h_r) is satisfactory if it is not more than 11 for the rifabutin peak, equivalent to 2,000 theoretical plates for a 11-centimeter column of 5-micrometer particles.

(C) *Resolution factor.* The resolution factor (R) between the peak for rifabutin and its closest eluting degradation product (generated in situ as described in paragraph (b)(1)(iii) of this section and eluting at RRT of 0.8–0.9) is satisfactory if it is not less than 1.3.

(D) *Coefficient of variation (relative standard deviation).* The coefficient of variation (S_R in percent of 5 replicate injections of the rifabutin working standard solution) is satisfactory if it is not more than 2.0 percent. If the system suitability parameters have been met, then proceed as described in § 436.216(b) of this chapter.

(iv) *Calculations.* Calculate the micrograms of rifabutin per milligram of sample on an anhydrous basis as follows:

$$\text{Micrograms of rifabutin per milligram} = \frac{A_U \times P_S \times 100}{A_S \times C_U \times (100 - m)}$$

where:

A_U = Area of the rifabutin peak in the chromatogram of the sample (at a retention time equal to that observed for the standard);

A_S = Area of the rifabutin peak in the chromatogram of the rifabutin working standard;

P_S = Rifabutin activity in the rifabutin working standard solution in micrograms per milliliter;

C_U = Milligrams of sample per milliliter of sample solution; and

m = Percent moisture content of the sample.

(2) *Related substances.* Proceed as directed in paragraph (b)(1) of this section for potency using the sample prepared as described in paragraph (b)(1)(ii)(B) of this section and calculating the amounts of related substances as follows.

(i) *Calculations.* Calculate the percentage of related substances as follows:

$$\text{Percent individual HPLC-related substance} = \frac{A_i \times 100}{A_t}$$

$$\text{Percent total HPLC-related substances} = \frac{A \times 100}{A_t}$$

where:

A_i = Area of the individual related substance peak;

A = The sum of areas of all peaks minus the area due to the rifabutin peak and solvent front peak; and

A_t = The sum of areas of all peaks in the chromatogram excluding the solvent peak.

(ii) [Reserved]

(3) *Moisture.* Proceed as directed in § 436.201 of this chapter.

(4) *N-Isobutylpiperidone.* Proceed as directed in § 436.369 of this chapter.

(5) *Identity.* (i) Proceed as directed in § 436.211 of this chapter, using the sample preparation method described in paragraph (b)(1) of that section using a 1 to 2 percent mixture in potassium bromide.

(ii) The identity of rifabutin is confirmed by the qualitative comparison of the HPLC of the sample to the rifabutin working standard as directed in paragraph (b)(1) of this section.

10. New § 455.188 is added to subpart B to read as follows:

§ 455.188 Rifabutin capsules.

(a) *Requirements for certification—(1) Standards of identity, strength, quality, and purity.* Rifabutin capsules are gelatin capsules containing rifabutin with a suitable and harmless filler and with or without binders, lubricants, and stabilizers. Each capsule contains rifabutin equivalent to 150 milligrams of rifabutin. Its rifabutin content is satisfactory if it is not less than 90 percent and not more than 110 percent of the number of milligrams of rifabutin that it is represented to contain. Its content of the four major related substances detected by high-performance liquid chromatography (HPLC) is not more than 1.0 percent each. All other unknown related substances are not more than 0.5 percent. The total of all related substances is not more than 4.5 percent. It passes the dissolution test if the quantity (Q) dissolved is 75 percent at 45 minutes. It passes the identity test. The rifabutin used conforms to the standards prescribed by § 455.88(a)(1).

(2) *Labeling.* It shall be labeled in accordance with the requirements of § 432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of § 431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on:

(A) The rifabutin used in making the batch for potency, related substances, moisture, *N*-isobutylpiperidone, and identity.

(B) The batch for content, related substances, dissolution, and identity.

(ii) Samples, if required by the Director, Center for Drug Evaluation and Research:

(A) The rifabutin used in making the batch: 10 packages, each containing approximately 300 milligrams.

(B) The batch: A minimum of 30 capsules.

(b) *Tests and methods of assay—(1) Rifabutin content.* Proceed as directed in § 455.88(b)(1), preparing the sample solution and calculating the rifabutin content as follows:

(i) *Preparation of sample solution.* Empty 20 capsules, collecting the contents quantitatively. Weigh the powder and determine the average capsule fill weight. Mix the powder and accurately weigh a portion containing the equivalent of about 25 milligrams of rifabutin into a 50-milliliter volumetric flask. Add 5 milliliters of acetonitrile. Dilute to volume with mobile phase and mix to yield a solution containing 0.5 milligram of rifabutin per milliliter (estimated). Filter through a suitable filter capable of removing particulate matter 0.5 micron in diameter prior to injection into the chromatographic system.

(ii) *Calculations.* Calculate the rifabutin content as follows:

$$\text{Milligrams of rifabutin per capsule} = \frac{A_U \times C_S \times P_S \times W_a}{A_S \times C_U \times 1{,}000}$$

where:
A_U = Area of the rifabutin peak in the chromatogram of the sample (at a retention time equal to that observed for the standard);
A_S = Area of the rifabutin peak in the chromatogram of the rifabutin working standard;
C_S = Milligrams of rifabutin working standard per milliliter of standard solution;
C_U = Milligrams of sample per milliliter of sample solution;
P_S = Rifabutin activity in the rifabutin working standard solution in micrograms per milliliter; and
W_a = Average capsule fill weight in milligrams.

(2) *Related substances.* Proceed as directed in paragraph (b)(1) of this section for rifabutin content using the sample prepared as described in paragraph (b)(1)(i) of this section and calculating the amounts of related substances as follows.

(i) *Calculations.* Calculate the percentage of related substances as follows:

$$\text{Percent individual HPLC-related substance} = \frac{A_i \times 100}{A_r}$$

$$\text{Percent total HPLC-related substances} = \frac{A \times 100}{A_r}$$

where:
A_i = Area of the individual related substance peak;
A = The sum of areas of all peaks minus the area due to the rifabutin peak and solvent front peak; and
A_r = The sum of areas of all peaks in the chromatogram excluding the solvent peak.

(ii) [Reserved]

(3) *Dissolution test.* Proceed as directed in § 436.215 of this chapter. The quantity (Q) (the amount of rifabutin activity dissolved) is 75 percent within 45 minutes.

(4) *Identity.* (i) The retention time of the rifabutin response in the HPLC procedure described in paragraph (b)(1) of this section as applied to the sample solution compares qualitatively to that of the rifabutin reference standard.

(ii) The identity of rifabutin capsules is also confirmed by the spectrophotometric identity test described in § 436.370 of this chapter.

Dated: August 1, 1994.

Stephanie R. Gray,

Acting Director, Office of Compliance, Center for Drug Evaluation and Research.

[FR Doc. 94–19484 Filed 8–9–94; 8:45 am]

BILLING CODE 4160–01–F

DEPARTMENT OF DEFENSE

Office of the Secretary

32 CFR Part 77

[DoD Instruction 1332.37]

RIN 0790–AF70

Program to Encourage Public and Community Service Employment

AGENCY: Department of Defense (DOD).

ACTION: Final rule.

SUMMARY: The Department of Defense (DoD) is adopting as a final rule, without change, the provisions of a proposed rule establishing guidelines for the registration of public and community service organizations and a listing of separating DoD personnel and their spouses to be maintained by the Department of Defense. The purpose of the public and community service organizational registry is to provide an avenue for public and community service organizations to recruit highly skilled and experienced separating DoD personnel and their spouses. The final rule encourages continuing public and community service for separating Military Service members, as well as to implement the temporary early retirement authority as established in the National Defense Authorization Act for Fiscal Year 1993 (hereinafter, "the Act"). This registry will be maintained indefinitely to encourage separating Service members to enter into public and community service job vacancies, such as in education, conservation, environmental protection, law enforcement, and public health care after separation from active duty. This action provides the necessary guidelines to determine how separating Military Service members, DoD civilian personnel leaving the Government, and their spouses register for public and community service employment, which organizations qualify for registration, and procedures qualifying organizations must take to be placed on the registry.

EFFECTIVE DATE: This rule is effective June 29, 1994.

FOR FURTHER INFORMATION CONTACT: Lt. Col. David F. Witkowski, (703) 695–1636.

SUPPLEMENTARY INFORMATION: This final rule is being issued after publication of a proposed rule on April 4, 1994 (59 FR 15673) in 32 CFR Part 77. There were no public comments to the proposed rule.

This rule is established in order to describe the organizational responsibilities within DoD for the program to encourage public and community service employment and to state the general policy of DoD with respect to this program. It has been certified that this rule would not be a significant rule. The rule would:

(a) Not have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a section of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(b) Not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(c) Not materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or,

(d) Not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order 12866.

(e) Not become subject to the Regulatory Flexibility Act (5 U.S.C. 601) because it is not likely to have a significant economic impact on a substantial number of small entities. The primary effect on grantees administering the proposed rule will be a reduction in administrative costs and other burdens resulting from the simplification and clarification of certain policies and the elimination of policy differences among the federal agencies promulgating this final rule.

(f) Impose a reporting requirement under the Paperwork Reduction Act of 1980 (44 U.S.C. 3501–3250). The Office of Management and Budget approved the reporting requirement and assigned control number 0704–0324.

List of Subjects in 32 CFR Part 77

Employment, Military personnel, civilian personnel.

Accordingly, Title 32, Chapter I, Subchapter C, is amended to add Part 77 to read as follows:

PART 77—PROGRAM TO ENCOURAGE PUBLIC AND COMMUNITY SERVICE

Sec.
77.1 Purpose.
77.2 Applicability and scope.
77.3 Definitions.
77.4 Policy.
77.5 Responsibilities.
77.6 Procedures.

Appendix A to Part 77—DD Form 2580, Operation Transition Department of Defense Outplacement and Referral System/Public and Community Service Individual Application

Appendix B to Part 77—DD Form 2581, Operation Transition Employer Registration

Appendix C to Part 77—DD Form 2581–1, Public and Community Service Organization Validation

Authority: 10 U.S.C. 1143 (c).

§ 77.1 Purpose.

This part implements Pub. L. 102–484, Section 4462 and Pub. L. 103–160, Section 561 by establishing policy, assigning responsibilities, and prescribing procedures to:

(a) Encourage and assist separating Service members, Service members retiring with 20 or more years of service, DoD civilian personnel leaving the Government, and spouses to enter public and community service employment.

(b) Encourage and assist Service members requesting retirement with fewer than 20 years of service to register for public and community service employment.

§ 77.2 Applicability and scope.

This part applies to:

(a) The Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Unified Combatant Commands, and the Defense Agencies (hereafter referred to collectively as "the DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force, and the Marine Corps.

(b) All active duty Service members and former members under Pub. L. 102–484, Section 4462 and Pub. L. 103–160, Section 561, and DoD civilian personnel leaving the Government, and their spouses.

§ 77.3 Definitions.

(a) *Community service employment.* Work in nonprofit organizations that provide or coordinate services listed in paragraphs (d) (1) through (12) of this section. "Nonprofit" is defined as having been recognized by the Internal Revenue Service as having a tax-exempt status under 26 U.S.C. 501 (c)(3) or (c)(4). These organizations shall not be administered by businesses organized for profit, labor unions, partisan political organizations, or organizations engaged in religious activities, unless such activities are unrelated to religious instructions, worship services, or any form of proselytization.

(b) *Creditable early retirement public or community service employment for service members.* Employment in a DoD-registered public and community service organization that provides the services listed in paragraphs (d) (1) through (12) of this section, or that coordinates the provision of the services listed in paragraphs (d) (1) through (12) of this section. Federal employment shall count toward recomputed military retirement pay and Survivor Benefit Plan base amount for early retirees: however, working in a DoD-registered Federal public service organization may trigger the dual-compensation restrictions of 5 U.S.C. 5532. Employment must have occurred between that date of early retirement and the date in which the Service member would have attained 20 years of credible service for computing retired pay, or he or she must have retired on or after October 23, 1992 and before October 1, 1999.

(c) *Early retirement.* Retirement from active duty with at least 15 but fewer than 20 years of service, as provided by Pub. L. 102–484, Section 4403.

(d) *Public and community service organization.* Government or private organizations that provide or coordinate the provision of the following services.

(1) Elementary, secondary, or post secondary school teaching or administration.
(2) Support of teachers or school administrators.
(3) Law enforcement.
(4) Public health care.
(5) Social services.
(6) Public safety.
(7) Emergency relief.
(8) Public housing.
(9) Conservation.
(10) Environment.
(11) Job training.
(12) Other public and community service not listed previously, but consistent with or related to services described in paragraphs(d)(1) through (11) of this section.

(e) *Public service employment.* Work in a Federal, state or local government organization which provides or coordinates services listed in paragraphs (d)(1) through (12) of this section.

(f) *Separation.* Normal separation from activity duty or civil service, military retirement with 20 or more year's service, release from active military service, and reduction in force.

(g) *Transition assistance program counselor.* A person charged with the responsibility of conducting transition programs. Examples include personnel assigned to family centers, military or civilian personnel offices, unit transition counselors, and as command career counselors.

§ 77.4 Policy.

It is DoD policy that:

(a) All separating Service members and former members shall be encouraged to enter public or community service employment.

(b) Service members determined to be eligible by the Secretary of their Military Department for, and who do request retirement with fewer than 20 years of service, are required by Pub. L. 102–484, Section 4403 to register for public and community service employment.

(1) This registration normally shall take place not earlier than 90 days before retirement or terminal/transition leave.

(2) In order to have their military retired pay and Survivor Benefit Plan base amount (if applicable) recomputed in accordance with DoD Instruction 1340.19[1] early retirees must be employed with a DoD-registered public or community service organization that provides the services listed in sections 77.3(d)(1) through (d)(12), or that coordinates the provision of services listed in section 77.3(d)(1) through (d)(12).

(c) DoD civilian personnel leaving the Government, their spouses, and spouses of Service members who are seeking employment shall be encouraged to register for public and community service employment.

§ 77.5 Responsibilities.

(a) The Under Secretary of Defense for Personnel and Readiness shall:

(1) Monitor compliance with this rule.

(2) Establish policy and provide guidance related to public and community service employment.

(3) Provide program information to the public on the Department of Defense's public and community service employment program.

(4) Ensure that the Director, Defense Manpower Data Center (DMDC):

(i) Maintains the Public and Community Service Organizational Registry.

(ii) Maintains the Public and Community Service Personnel Registry.

(5) Decide the status of requests for reconsideration from employers resubmitting their request to be included on the Public and Community Service Organizational Registry, but whose first request was disapproved.

(b) The Secretaries of the Military Departments shall:

(1) Ensure compliance with this rule.

(2) Encourage public and community service employment for separating Service members, their spouses, DoD civilian personnel leaving the Government, and their spouses.

(3) Coordinate with the Under Secretary of Defense for Personnel and Readiness before promulgating public and community service employment policies and regulations.

[1] Copies may be obtained, at cost, from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

77.6 Procedures

(a) Military personnel offices shall advise Service members desiring to apply for early retirement that they shall register, normally, within 90 days of their retirement date, for public and community service (PACS) employment, and refer them to a Transition Assistance Program Counselor for registration.

(b) Personnel offices shall advise separating Service members, DoD civilian personnel leaving the Government, and their spouses to contact a Transition Assistance Program Counselor about PACS employment and registration.

(c) Transition Assistance Program Counselors shall counsel separating Service members (during preseparation counseling established by DoD Instruction 1332.36 [2]), DoD civilian personnel leaving the Government, and their spouses on PACS employment. Counselors shall update into the Defense Outplacement Referral System (DORS) database Service members requesting early retirement and other DoD personnel or spouses who request registration. Transition Assistance Program Counselors shall use DD Form 2580 (Appendix A to this part) to register personnel for PACS employment. In addition, Counselors shall ensure that Service members who are requesting early retirement are advised that:

(1) Registering for PACS employment is a requirement for consummation of their early retirement under Pub. L. 102–484, Section 4403 or Pub. L. 103–160, Section 561.

[2] See footnote 1 to section 77.4(b)(2).

(2) Early retirees must provide a copy of their confirmation DORS mini-resume to their servicing military personnel office for filing in their Service record before their final retirement processing.

(3) Subsequent PACS employment is encouraged but not required.

(4) Working in a DoD-approved Federal public service organization may subject him or her to dual compensation restrictions of 5 U.S.C. 5532.

(5) DoD-approved PACS employment qualifies the Service member who is retired under Pub. L. 102–484, Section 4403 or Pub. L. 103–160, Section 561 for increased retired pay effective on the first day of the first month beginning after the date on which the member or former member attains 62 years of age. The former Service member must have worked in DoD-approved PACS employment between the date of early retirement and the date in which he or she would have attained 20 years of creditable service for computing retired pay, and have retired on or after October 23, 1992 and before October 1, 1999.

(6) It is the early retiree's responsibility to ensure that the DMDC is advised when the early retiree's PACS employment starts, and of any subsequent changes.

(d) Military personnel offices shall ensure a copy of the confirmation DORS mini-resume is filed in the permanent document section of the Service record of Service members who retire early.

(e) DMDC shall maintain the PACS Personnel Registry, which includes information on the particular job skills, qualifications, and experience of registered personnel.

(f) DMDC shall maintain the PACS Organizational Registry, which includes information regarding each organization, including its location, size, types of public or community service positions in the organization, points of contact, procedures for applying for such positions, and a description of each position that is likely to be available.

(g) PACS Organizations shall use DD Form 2581 (Appendix B to this part) and DD Form 2581–1 (Appendix C to this part) to request registration on the PACS Organizational Registry. Instructions on how to complete the forms and where to send them are on the forms.

(h) DMDC shall register those organizations meeting the definition of a PACS organization and include them on the PACS Organizational Registry. For organizations that do not appear to meet the criteria, DMDC shall refer the request to the Transition Support and Services Directorate, Office of the Assistant Secretary of Defense for Personnel and Readiness. The Transition Support and Services Directorate may consult individually on an ad hoc basis with appropriate agencies to determine whether or not the organization meets the validation criteria. For organizations which are denied approval as a creditable early retirement organization and which request reconsideration, the Transition Support and Services Directorate will forward that request to the next higher level for a final determination. DMDC shall advise organizations of their status.

BILLING CODE 5000–04–P

Appendix A to Part 77–DD Form 2580, Operation Transition Department of Defense Outplacement and Referral System/Public and Community Service Individual Application

OPERATION TRANSITION
DEPARTMENT OF DEFENSE OUTPLACEMENT AND REFERRAL SYSTEM/ PUBLIC AND COMMUNITY SERVICE INDIVIDUAL APPLICATION

Form Approved
OMB No. 0704-0324
Expires Dec 31, 1996

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0324), Washington, DC 20503

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES.
RETURN COMPLETED FORM TO YOUR LOCAL MILITARY TRANSITION OFFICE.

PRIVACY ACT STATEMENT

AUTHORITY: 10 U.S.C. 1143, 1144; EO 9397.

PRINCIPAL PURPOSE(S): To assist separating DoD personnel and their spouses in securing employment. Individuals participating in the Defense Outplacement Referral System (DORS) and Public and Community Service Registry will have their employment skills included in a data base designed to link prospective employers with DORS and Public and Community Service applicants.

ROUTINE USE(S): To public and private employers (including Federal, State, and local employment agencies and outplacement agencies, public and community service agencies)

DISCLOSURE: Voluntary; however, failure to provide all requested information will result in applicant data not being included in the system.

If you are an active duty Servicemember, the following information will be added to your job referral form from your official military personnel records, if available: Rank, Years of Service, Most Recent Primary Occupation, and Branch of Service and Security Clearance. Information on race, ethnic background, sex, age, marital status, and religious preference will not be released to employers Operation Transition is an equal opportunity program (*Completion of questions pertaining to the DORS program is voluntary.*).

SECTION I - TO BE FILLED OUT BY ALL APPLICANTS *(Print or Type)*

1. REGISTRATION REQUEST *(Check all that apply)*

☐ DORS ONLY ☐ PUBLIC AND COMMUNITY SERVICE ONLY ☐ BOTH

2a. NAME *(Last, First, Middle Initial)*	2b. SOCIAL SECURITY NUMBER	3. DATE AVAILABLE FOR WORK *(YYMMDD)*

4. FILING STATUS *(X all that apply)*

a. MILITARY *(Branch of Service)*
☐ (1) Army ☐ (3) Marine Corps
☐ (2) Navy ☐ (4) Air Force

☐ b. SPOUSE OF ACTIVE DUTY MILITARY OR CIVIL SERVICE EMPLOYEE
☐ c. CIVIL SERVICE EMPLOYEE

5. U.S. CITIZEN *(X one)*
☐ YES ☐ NO

6. ADDRESS *(For next 6 months) (Street, City, State, Country, and Zip Code)* AND TELEPHONE NUMBER *(Include Area Code)*

a. ADDRESS LINE 1	f. COUNTRY CODE
b. ADDRESS LINE 2	g. FOREIGN ZIP CODE
c. CITY	h. U.S. TELEPHONE NUMBER
d. STATE / e. U.S. ZIP CODE	i. FOREIGN TELEPHONE NUMBER

7a JOB TYPE PREFERENCES *(See Instructions for job codes) (Enter one digit per block)*	b. INCLUDE MAJOR DUTIES ON RESUME? *(X one)*	8. REGIONAL WORK PREFERENCE *(See Instructions) (Enter one digit per block)*	9. SPECIFIC WORK PREFERENCES *(Nearest large town or city within commuting distance - does not have to be in region)*
	☐ Yes ☐ No		a. STATE / b. CITY (1) (2)

10. HIGHEST EDUCATION LEVEL ACHIEVED *(X one)*

☐ a. Non-High School Graduate
☐ b. High School Graduate or GED
☐ c. Less than 2 years of college
☐ d. Associate Degree or equivalent
☐ e. Less than 4 years of college
☐ f. Bachelor's Degree
☐ g. Post Bachelor's Degree
☐ h. Master's Degree
☐ i. Post Master's Degree
☐ j. Doctorate Degree

11. YEAR ACHIEVED	12. SUBJECT OF DEGREE *(If applicable)*	13. COLLEGE UNIVERSITY FROM WHICH DEGREE ACHIEVED *(If applicable)*

DD Form 2580, FEB 94 PREVIOUS EDITIONS ARE OBSOLETE

14. PERSONAL INFORMATION (See Instructions) (Please provide no more than 10 lines (76 spaces per line; maximum of 760 spaces). Database limitations do not permit entering additional personal information.)

SAMPLE

SECTION II - SPOUSE
(Military Member - Go to Section III)

15. SPONSOR DATA

a. NAME (Last, First, Middle Initial) | b. SOCIAL SECURITY NUMBER

16. YOUR JOB HISTORY (See instructions for job codes) (Enter one digit per block)

	a. JOB CODE	b. LENGTH OF TIME JOB HELD	
(1) CURRENT JOB		YEARS	MONTHS
(2) PRIOR JOB		YEARS	MONTHS
(3) PRIOR JOB		YEARS	MONTHS

17. HAVE YOU EVER HELD A SUPERVISORY POSITION? (X one)
☐ YES ☐ NO

18. HAVE YOU EVER HELD A SECURITY CLEARANCE? (X one)
☐ YES ☐ NO

SECTION III - ALL APPLICANTS MUST READ AND SIGN

19 AUTHORIZATION

I hereby authorize release of the data on this form to civilian agencies and / or private organizations for employment purposes. If I am a civil service employee or an active duty service member, I also authorize the release of data from extracts of my computerized personnel records.

a. SIGNATURE | b. DATE SIGNED (YYMMDD)

DD Form 2580, FEB 94

OPERATION TRANSITION DEPARTMENT OF DEFENSE OUTPLACEMENT AND REFERRAL SYSTEM/PUBLIC AND COMMUNITY SERVICE INDIVIDUAL APPLICATION

DETAILED INSTRUCTIONS

SECTION I - TO BE FILLED OUT BY ALL APPLICANTS

If you are a service member, complete items 1 through 14 and item 19 (at their entirety). You do not need to fill out items 15 through 18. They will be extracted from your personnel records. It is important that you verify the accuracy of these records prior to entering this program to ensure that the information that is put on your resume is accurate. If you are a spouse, you must complete all items on the form.

Item 1. Place an X next to the program(s) you wish to register for. If you selected the early retirement option, you must X Public and Community Service or both.

Item 2a. Name. Print / type your name, last name first.

Item 2b. SSN. Enter your Social Security Number

Item 3. Date Available for Work. Enter the date you will be available for work as year, month, day (YYMMDD). Availability should not be beyond 6 months from the current date.

Item 4. Filing Status. Place an X in the box that applies.

Item 5. Citizenship. If you are a U.S. citizen, X the YES box. If not, X the NO box.

Item 6. Address and Telephone Number. Print/type the address and telephone number where you can be contacted during the next three months.

Item 7. a. Job Type Preferences. Enter up to three codes from the Guideline of Standard Occupation Classification (SOC) Codes, FIPS Pub 92, that most closely match(es) the type of job(s) you are seeking/qualified to perform.

b. If you select yes, your primary occupational description will be included in your resume. Select no if you do not want your primary occupational description included.

Item 8. Regional Work Preference. Refer to the regional preference list below, and enter the two-digit code for the geographical area in which you are seeking employment.

REGION 0
Only the specific cities selected

REGION 1
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

REGION 2
Delaware
New Jersey
New York
Pennsylvania

REGION 3
District of Columbia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

REGION 4
Alabama
Florida
Georgia
Mississippi
Puerto Rico
Tennessee
Virgin Islands

REGION 5
Indiana
Kentucky
Michigan
Ohio

REGION 6
Iowa
Minnesota
Montana
North Dakota
South Dakota
Wisconsin

REGION 7
Illinois
Kansas
Missouri
Nebraska

REGION 8
Arkansas
Louisiana
Oklahoma
Texas

REGION 9
Arizona
Colorado
Idaho
Nevada
New Mexico
Utah
Wyoming

REGION 10
California
Oregon
Washington

REGION 11
Alaska

REGION 12
American Samoa
Hawaii
Guam

REGION 13
Anywhere in the U.S.A.

REGION 14
Outside the U.S.A.

REGION 15
Anywhere

Item 9. Specific Work Preferences. Enter your first and second work location preferences. Refer to the list below and enter the two-letter abbreviation for the state and print / type the name of the largest city within commuting distance of where you want to work for your first and second work preferences. These cities do not have to be in the region chosen in Item 8.

STATE	CODE	STATE	CODE	STATE	CODE
Alabama	AL	Kentucky	KY	North Dakota	ND
Alaska	AK	Louisiana	LA	Ohio	OH
Arizona	AZ	Maine	ME	Oklahoma	OK
Arkansas	AR	Maryland	MD	Oregon	OR
California	CA	Massachusetts	MA	Pennsylvania	PA
Colorado	CO	Michigan	MI	Rhode Island	RI
Connecticut	CT	Minnesota	MN	South Carolina	SC
Delaware	DE	Mississippi	MS	South Dakota	SD
District of Columbia	DC	Missouri	MO	Tennessee	TN
Florida	FL	Montana	MT	Texas	TX
Georgia	GA	Nebraska	NE	Utah	UT
Hawaii	HI	Nevada	NV	Vermont	VT
Idaho	ID	New Hampshire	NH	Virginia	VA
Illinois	IL	New Jersey	NJ	Washington	WA
Indiana	IN	New Mexico	NM	West Virginia	WV
Iowa	IA	New York	NY	Wisconsin	WI
Kansas	KS	North Carolina	NC	Wyoming	WY

Item 10. Highest Education Level Achieved. X the box which most closely matches your highest education level achieved.

Item 11. Year Achieved. Enter the year you achieved Item 10.

Item 12. Subject of Degree. Print/type the degree achieved (if applicable) in Item 10 (e.g. BS, Mechanical Engineering; BA, Western Civilization; MS, Physics; etc.).

Item 13. College/University. Print/type the name of the college/university where Item 10 was obtained if applicable.

Item 14. Personal Information. Print/type in this space any information about yourself you feel would help you obtain a job in the field you are searching. All information in this space will be printed verbatim on your DORS resume. If you are seeking a job in a field other than your primary military duty this information is the most important since it will comprise a majority of your resume. Carefully choose your words and grammar

Examples:
- Fluent in Chinese, Russian and Spanish
- Virginia State licensed electrician
- 14 years experience in personnel management
- Owned personal computer training business, Jones Computer Training
- American Society of Mechanical Engineers member

SECTION II - SPOUSE

This section is to be completed only by spouses of military and DoD civilians whose personnel files are not kept by the government.

Item 15. Sponsor Data.

a. Name. Print/type your sponsor's name, last name first.

b. SSN. Enter your sponsor's Social Security Number.

Item 16. Your Job History.

a. Job Codes. Consult the Guideline for Standard Occupational Classification (SOC) Codes, FIPS Pub 92, and enter the job codes that most closely match the previous three jobs you held.

b. Length of Time Job Held. Enter the number of years and months the job was held (03 years, 09 months).

Item 17. Supervisory Experience. If you have supervisory experience, X the YES box. If not, X the NO box.

Item 18. Security Clearance. If you had a security clearance, X the YES box. If not, X the NO box.

SECTION III

All applicants must sign and date. Turn in the completed form to the transition assistance office

Appendix B to Part 77–DD Form 2581, Operation Transition Employer Registration

OPERATION TRANSITION EMPLOYER REGISTRATION

Form Approved
OMB No. 0704-0324
Expires Dec 31, 1996

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0324), Washington, DC 20503

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES ABOVE.

RETURN COMPLETED FORM TO: DMDC, ATTENTION: OPERATION TRANSITION, BOX 100, FORT ORD, CA 93941-0100

1. ORGANIZATION NAME AND ADDRESS *(Include 9-digit ZIP Code)*	2. EMPLOYMENT CONTACT ADDRESS *(If different from Item 1) (Include 9-digit ZIP Code)*
3. ORGANIZATION CONTACT	4. EMPLOYMENT CONTACT *(If different from Item 3)*
5. ORGANIZATION TELEPHONE NUMBER	6. EMPLOYMENT CONTACT TELEPHONE NUMBER *(If different from Item 5)*
7. FAX TELEPHONE NUMBER	8. FAX ROUTING ADDRESS
9. HOW DID YOU HEAR ABOUT OPERATION TRANSITION?	10. IS YOUR ORGANIZATION A *(Check one)* ☐ a. Private Sector Employer ☐ b. Public or Community Service Employer

11. TYPES AND LOCATIONS OF POSITIONS IN ORGANIZATION LIKELY TO BE AVAILABLE *(Briefly describe)*

12. PROCEDURES FOR APPLYING FOR AVAILABLE POSITIONS *(Please indicate if you do not wish to receive unsolicited resumes)*

13a. SIZE OF ORGANIZATION	13b. MAJOR FUNCTION/BUSINESS ACTIVITY OF ORGANIZATION

14a. IS YOUR ORGANIZATION INVOLVED IN *(Check applicable block(s))*		14b. ARE YOUR POSITION(S)	14c. IS AN INVESTMENT OR FEE NECESSARY
☐ (1) Placement Services	☐ (4) Franchise Operations	☐ (1) Commission only	☐ (1) YES ☐ (2) NO
☐ (2) Direct Marketing		☐ (2) Salary only	(3) IF YES, SPECIFY AMOUNT
☐ (3) Multi-level Marketing	☐ (5) None of the above	☐ (3) Combination of commission and salary	$

15. AGREEMENT

I understand this agreement covers the use of Operation Transition automated systems including the Defense Outplacement Referral System (DORS), the Public and Community Service (PACS) Personnel Registry, and the Transition Bulletin Board (TBB). I hereby agree to use the DORS and PACS Personnel Registry only for employment purposes at no charge to the individual. I also agree not to use the DORS and PACS Personnel Registry to develop mailing lists or to promote business opportunities such as franchise or direct or multi-level marketing operations.

I certify that the information provided is true, accurate, and complete. I acknowledge that any false statement may be punishable pursuant to Title 18 U.S.C. Section 1001.

16. SIGNATURE	17. DATE (YYMMDD)

GOVERNMENT USE ONLY

18. REGISTRATION NUMBER	19. CLERK	20. DATE (YYMMDD)

DD Form 2581, FEB 94 *Previous edition is obsolete*

INSTRUCTIONS FOR COMPLETING DD FORM 2581

1. ORGANIZATION NAME AND ADDRESS. Enter your organization name and address exactly as you would like it to appear on information mailed to you. P.O. Boxes not preferred.

2. EMPLOYMENT CONTACT ADDRESS. Enter the address of your Human Resources Department *(if different from item 1).*

3. ORGANIZATION CONTACT. Enter the name of the individual who will serve as organizational contact to Operation Transition.

4. EMPLOYMENT CONTACT. Enter the name of an individual in your Human Resources Department who can answer specific questions on employment and positions available *(if different from item 3).*

5. ORGANIZATION TELEPHONE NUMBER. Enter the area code and telephone number for your organization. Please enter a direct line or voice mail, if available.

6. EMPLOYMENT CONTACT TELEPHONE NUMBER. Enter the area code and telephone number for your employment contact *(if different from item 5).* Please enter a direct line or voice mail, if available .

7. FAX TELEPHONE NUMBER. Enter the area code and telephone number of your FAX machine.

8. FAX ROUTING ADDRESS. Enter any additional information that may be needed on the FAX cover sheet.

9. HOW DID YOU HEAR ABOUT OPERATION TRANSITION. List the source(s) where you first heard about Operation Transition.

10. IS YOUR ORGANIZATION A... Check the appropriate box: a. Private Sector employers are those who operate on a "for profit" basis. b. Public Service Employers are local, state, or federal governmental entities. Community Service Employers are certified non-profit organizations or associations.

11. TYPES AND LOCATIONS OF POSITIONS IN ORGANIZATION LIKELY TO BE AVAILABLE. Briefly describe the positions *(job types or titles)* and the location of the positions which may be available for employment referrals.

12. PROCEDURES FOR APPLYING FOR AVAILABLE POSITIONS. Briefly describe how the applicants should apply for available positions.

13a. SIZE OF ORGANIZATION. Briefly describe size *(number of personnel, branch offices, etc.)* of your organization.

13b. MAJOR FUNCTION/BUSINESS ACTIVITY OF ORGANIZATION. Briefly describe the major business activities *(financial consulting, food processing, etc.)* of your organization.

14a. IS YOUR ORGANIZATION INVOLVED IN... Please indicate if your organization is involved in these activities. Specific services are available. If none of the above applies check box "5."

14b. ARE YOUR POSITION(S)... Indicate if the compensation for these positions is commission only, salary only, or commission and salary combined.

14c. IS AN INVESTMENT OR FEE NECESSARY. Indicate if acceptance of the position requires a monetary outlay by the applicant. This includes: membership fees, agency fees, start-up kits, inventory investments, or tuition. If yes, specify the amount the applicant would be expected to pay.

15. AGREEMENT. Your signature in item 16 indicates acceptance of the agreement in this item.

Please make certain that all items above have been completed in their entirety. Sign and date the form in items 16 and 17.

MAIL OR FAX THE COMPLETED FORM TO:

DMDC
ATTENTION: Operation Transition
Box 100
Fort Ord, CA 93941-0100
FAX: (408) 656-2132

DD Form 2581, FEB 94 (BACK)

Appendix C to Part 77–DD Form 2581–11, Public and Community Service Organization Validation

PUBLIC AND COMMUNITY SERVICE ORGANIZATION VALIDATION

Form Approved
OMB No. 0704-0324
Expires Dec 31, 1996

Public reporting burden for this collection of information is estimated to average 3 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0324), Washington, DC 20503

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO EITHER OF THESE ADDRESSES ABOVE.
RETURN COMPLETED FORM TO: DMDC, ATTN: OPERATION TRANSITION, BOX 100, FORT ORD, CA 93941-0100

1. NAME OF ORGANIZATION	2. ADDRESS OF ORGANIZATION *(Include Room/Suite Number and 9-digit ZIP Code)*
3. POINT OF CONTACT FOR ORGANIZATION	
4. POINT OF CONTACT TELEPHONE NUMBER *(Include Area Code)*	

5. PRIMARY SERVICE CATEGORY (ES) *(If your primary service category is not used, go to Item 6)*

	a. ELEMENTARY, SECONDARY, OR POSTSECONDARY SCHOOL TEACHING OR SCHOOL ADMINISTRATION				
	b. SUPPORT OF ELEMENTARY, SECONDARY, OR POSTSECONDARY SCHOOL TEACHING OR SCHOOL ADMINISTRATION				
	c. SOCIAL SERVICES		d. PUBLIC HEALTH CARE		e. LAW ENFORCEMENT
	f. PUBLIC HOUSING		g. PUBLIC SAFETY		h. CONSERVATION
	i. EMERGENCY MANAGEMENT		j. ENVIRONMENT		k. JOB TRAINING

6. IF YOUR ORGANIZATION PROVIDES PRIMARY FUNCTIONS OTHER THAN THOSE LISTED IN ITEM 5, BRIEFLY DESCRIBE THESE MAJOR FUNCTIONS

7. TYPE OF SERVICE

	a. PUBLIC *(Federal, State, or Local Government - go to Item 8)*
	b. COMMUNITY *(Non-profit Organization or Association - go to Item 9)*

8. PUBLIC SERVICE HEADQUARTERS AGENCY

a. ORGANIZATION NAME AND ADDRESS *(Include 9-digit ZIP Code)*	b. HEADQUARTERS POINT OF CONTACT AND POSITION
	c. TELEPHONE NUMBER FOR POINT OF CONTACT *(Include Area Code)*

9. COMMUNITY SERVICE / NON-PROFIT ORGANIZATION

IMPORTANT: Please attach a copy of the IRS Letter of Determination indicating your organization has received IRS 501 (C) (3) tax-exempt status. Also include a copy of your organization's annual report, mission statement, or other documentation of its function. Indicate below if your organization is affiliated with the United Way, Combined Federal Campaign or some other non-profit association.

a. AFFILIATE NAME AND ADDRESS *(Include 9-digit ZIP Code)*	b. AFFILIATE POINT OF CONTACT AND POSITION
	c. TELEPHONE NUMBER FOR POINT OF CONTACT *(Include Area Code)*

10 AGREEMENT

I understand this form provides information to help the Department of Defense establish a Public and Community Service organizational registry which will be accessible to departing Service members. I also understand certain individuals may receive additional entitlements based on the information specified in Public Law 102-484. I certify the information provided is true, accurate, and complete. I acknowledge that any false statement may be punishable pursuant to Title 18 U.S.C. Section 1001.

a. NAME AND TITLE *(Please print or type)*	b. SIGNATURE	c. DATE *(YYMMDD)*

DD Form 2581-1, FEB 94

INSTRUCTIONS FOR COMPLETING DD FORM 2581-1

This form collects information to be used to certify an organization on the Public and Community Service Organization Registry under the provisions of Section 4462 of Public Law 102-484.

Public service organizations are defined as federal, state, or local governmental entities.

Community service organizations are non-profit organizations or associations which provide or coordinate the delivery of services in the public interest. Organizations affiliated with the United Way or Combined Federal Campaign presumptively qualify as community service organizations.

Organizations involved in the following activities will not be considered public or community service organizations:

(1) Businesses organized for profit;

(2) Labor unions;

(3) Partisan political organizations; and

(4) Organizations engaged in religious activities, unless such activities are unrelated to religious instruction, worship services, or any form of proselytization.

Public Law 102-484 also provides that certain members of the military services retiring early from active duty receive additional military retirement credits by working in public or community service organizations. To receive this credit, the retiree's employing organization must be on the Public and Community Service Organization Registry and have as its primary function(s) one or more of the following categories of public or community service:

a. Elementary, secondary, or postsecondary school teaching or school administration.

b. Support of elementary, secondary, postsecondary school teaching or school administration.

c. Social services

d. Public health care

e. Law enforcement

f. Public housing

g. Public safety

h. Conservation

i. Emergency management

j. Environment

k. Job training

ALL ITEMS MUST BE COMPLETED

1. NAME OF ORGANIZATION. Print or type the name of your organization. Please be specific. For example, if the police department of the city of Oakdale is registering, use "Oakdale Police Department" as the organization instead of the "City of Oakdale."

2. ADDRESS OF ORGANIZATION. Enter the address of your organization exactly as you would like it to appear on information mailed to you. Please avoid P.O. Boxes when possible

3. POINT OF CONTACT FOR ORGANIZATION. Provide the name and job title of a person who can answer specific questions about the organization.

4. POINT OF CONTACT TELEPHONE NUMBER. Enter the area code and telephone number for the point of contact. Please enter a direct line or voice mail extension if available.

5. PRIMARY SERVICE CATEGORY (IES). Select the category that represents the core mission of your organization or department. If you provide primary services in two or more of the categories, select all applicable categories. As discussed above, the organization's primary functions must be in one or more of the listed categories (5a - 5k) for a military retiree to be eligible for additional retirement credit. If your primary service category is not listed, go to Item 6.

6. ORGANIZATION FUNCTIONS. If your organization provides primary services in categories other than 5a-5k, briefly describe those function (s).

7. TYPE OF SERVICE. Indicate whether your organization provides public or community service by checking the appropriate block. Public service refers to federal, state, local government organizations or agencies. Community service refers to certified nonprofit organizations or associations.

8. PUBLIC SERVICE HEADQUARTERS AGENCY. If public service, provide the name and address of the organization, if any, to which your organization reports. Include the name, job title, and telephone number of a person who can answer specific questions about the headquarters organization.

9. COMMUNITY SERVICE / NON-PROFIT ORGANIZATION. If a community service organization, attach a copy of the IRS Letter of Determination indicating that your organization has received IRS 501 (C) (3) tax-exempt status. A community service organization will NOT be validated without the Letter of Determination. Also include a copy of your organization's annual report or mission statement or attach other documentation about your organization's functions.

Provide the name and address of the organization, if any, to which your organization reports or with which it is affiliated. Provide the name, job title, and telephone number of a person who can answer specific questions about the headquarters affiliate.

10. AGREEMENT. Completion of this section and a signature by an organization's representative attests to the information's accuracy and completeness. Mail or fax the completed form to:

DMDC
ATTN: OPERATION TRANSITION
Box 100
Ft. Ord, CA 93941-0100

FAX: (408) 656-2132

Please call the Defense Manpower Data Center (DMDC) Help Desk at 1-800-727-3677 between the hours of 6 AM and 6 PM Pacific time if you have questions or need assistance with this form.

Community service organizations - - Remember to attach a copy of your IRS Letter of Determination and an annual report or mission statement.

DD Form 2581-1, FEB 94 (BACK)

BILLING CODE 5000-04-C

Dated: August 3, 1994.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 94–19438 Filed 8–9–94; 8:45 am]

BILLING CODE 5000–04–P

DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Part 100

[CGD 09–94–022]

RIN 2115–AE46

Special Local Regulation; West Michigan Offshore Powerboat Challenge, Lake Michigan, Grand Haven, MI

AGENCY: Coast Guard, DOT.

ACTION: Temporary final rule.

SUMMARY: A special local regulation is being adopted for the marine event, West Michigan Offshore Powerboat Challenge. This event will be held on Lake Michigan, Grand Haven, MI on September 11, 1994. The West Michigan Offshore Powerboat Challenge will have an estimated 50–70 offshore powerboats, racing in a closed course on Lake Michigan which could pose hazards to navigation in the area. This regulation is needed to provide for the safety of life, limb, and property on navigable waters during the event.

EFFECTIVE DATE: This regulation is effective from 12 p.m. (EDST) 3 p.m. (EDST), September 11, 1994.

FOR FURTHER INFORMATION CONTACT: William A. Thibodeau, Marine Science Technician Second Class, U.S. Coast Guard, Aids to Navigation & Waterways Management Branch, Ninth Coast Guard District, 1240 East 9th Street, Cleveland, Ohio 44199–2060, (216) 522–3990.

SUPPLEMENTARY INFORMATION: In accordance with 5 U.S.C. 553, a Notice of Proposed Rulemaking has not been published for this regulation and good cause exists for making it effective in less than 30 days from the date of publication. Following normal rulemaking procedures would have been impracticable. The application to hold this event was not received by the Commander, Ninth Coast Guard District until July 25, 1994, and there was not sufficient time remaining to publish a proposed rule in advance of the event or to provide for a delayed effective date.

Drafting Information

The drafters of this regulation are Scott J. Smith, Lieutenant Junior Grade, U.S. Coast Guard, Project Officer, Aids to Navigation & Waterways Management Branch and Karen E. Lloyd, Lieutenant, U.S. Coast Guard, Project Attorney, Ninth Coast Guard District Legal Office.

Discussion of Regulation

The West Michigan Offshore Powerboat Challenge will be held on Lake Michigan, Grand Haven, MI on September 11, 1994. This event will have an estimated 50–70 offshore powerboats, racing in a closed course on Lake Michigan which could pose hazards to navigation in the area. The effect of this regulation will be to restrict general navigation on that portion of Lake Michigan, between Grand Haven, MI and Port Sheldon, MI. This regulation is necessary to ensure the protection of life, limb, and property during this event. Any vessel desiring to transit the regulated area may do so only with prior approval of the Patrol Commander (Commanding Officer, U.S. Coast Guard Station Grand Haven, MI).

This regulation is issued pursuant to 33 U.S.C. 1225 and 1231 as set out in the authority citation for all of Part 165.

Federalism Implications

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environment

The Coast Guard has considered the environmental impact of this regulation and concluded that, under section 2.B.2.c of Coast Guard Commandant Instruction M16475.1B, it is categorically excluded from further environmental documentation.

Economic Assessment and Certification

This regulation is not a significant regulatory action under section 3(f) of Executive Order 12866 and does not require an assessment of potential costs and benefits under section 6(a)(3) of that order. It has been exempted from review by the Office of Management and Budget under that order. It is not significant under the regulatory policies and procedures of the Department of Transportation (DOT) (44 FR 11040; February 26, 1979). The Coast Guard expects the economic impact of this regulation to be so minimal that a full Regulatory Evaluation under paragraph 10e of the regulatory policies and procedures of the DOT is unnecessary.

Collection of Information

This regulation will impose no collection of information requirements under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.

List of Subjects in 33 CFR Part 100

Marine safety, Navigation (water), Reporting and recordkeeping requirements, Waterways.

Temporary Regulation

In consideration of the foregoing, Part 100 of Title 33, Code of Federal Regulations, is amended as follows:

1. The authority citation for Part 100 continues to read as follows:

Authority: 33 U.S.C. 1233; 49 CFR 1.46 and 33 CFR 100.35.

2. A temporary section 100.35–T09022 is added to read as follows:

§ 100.35–T09022 West Michigan Offshore Powerboat Challenge, Lake Michigan, Grand Haven, MI.

(a) *Regulated area.* That portion of Lake Michigan from:

Latitude	*Longitude*
43° 03.4′ N	086° 15.3′ W (Grand Haven South Pierhead Entrance Light, LLNR 18965), thence along the breakwater and shoreline to
42° 54.8′ N	086° 13′, thence to
42° 54.8′ N	086° 15.7′, thence to
43° 03.4′ N	086° 15.7′, thence to
43° 03.4′ N	086′ 15.3′ W (Grand Haven South Pierhead Entrance Light, LLNR 18965).

(b) *Special local regulation.* This regulation restricts general navigation in the regulated area for the safety of spectators and participants. Any vessel desiring to transit the regulated area may do so only with prior approval of the Patrol Commander.

(c) *Patrol commander.* (1) The Coast Guard will patrol the regulated area under the direction of a designated Coast Guard Patrol Commander (Commanding Officer, U.S. Coast Guard Station Grand Haven, MI). The Patrol Commander may be contacted on channel 16 (156.8 MHZ) by the call sign "Coast Guard Patrol Commander."

(2) The Patrol Commander may direct the anchoring, mooring, or movement of any boat or vessel within the regulated area. A succession of sharp, short signals by whistle or horn from vessels patrolling the area under the direction of the U.S. Coast Guard Patrol Commander shall serve as a signal to stop. Any vessel so signaled shall stop and shall comply with the orders of the Patrol Commander. Failure to do so may result in expulsion from the area, citation for failure to comply, or both.

(3) The Patrol Commander may establish vessel size and speed limitations and operating conditions.

(4) The Patrol Commander may restrict vessel operation within the regulated area to vessels having particular operating characteristics.

(5) The Patrol Commander may terminate the marine event or the operation of any vessel at any time it is deemed necessary for the protection of life, limb, or property.

(6) All persons in the area shall comply with the orders of the Coast Guard Patrol Commander.

(d) *Effective date.* This section will become effective from 12 p.m. (ESDT) until 3 p.m. (EDST) on September 11, 1994, unless otherwise terminated by the Coast Guard Patrol Commander (Commanding Officer, U.S. Coast Guard Station Grand Haven, MI).

Dated: July 26, 1994.

Rudy K. Peschel,

Rear Admiral, U.S. Coast Guard, Commander, Ninth Coast Guard District

[FR Doc. 94-19517 Filed 8-9-94; 8:45 am]

BILLING CODE 4910-14-M

33 CFR Part 110

[CGD14-93-003]

RIN 2115-AA98

Anchorage Ground; Pacific Ocean (Mamala Bay), Honolulu Harbor, HI

AGENCY: Coast Guard, DOT

ACTION: Final rule.

SUMMARY: This rule eliminates the existing anchorage ground for nitrate laden vessels off Honolulu Harbor and establishes four new anchorage grounds. The purpose of the regulation is to provide safe anchorage grounds for commercial vessels off Honolulu Harbor.

EFFECTIVE DATE: September [illegible], 1994

ADDRESSES: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of Commander (OAN), Fourteenth Coast Guard District, Prince Kalanianaole Federal Building, 300 Ala Moana Blvd., Honolulu, Hawaii 96850-4982 between 6:30 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (808) 541-2315.

FOR FURTHER INFORMATION CONTACT: LT S.S. BECKERMAN, (808) 541-2315.

SUPPLEMENTARY INFORMATION:

Drafting Information

The principal persons involved in drafting this document are LT S.S. BECKERMAN, Project Manager, Fourteenth Coast Guard District Aids to Navigation Branch, and CDR B.N. DURHAM, Project Counsel, Fourteenth Coast Guard District Legal Branch.

Regulatory History

On March 8, 1994, the Coast Guard published a notice of proposed rulemaking in the **Federal Register** for these regulations (59 FR 10772). The Coast Guard did not receive any letters commenting on the proposal. The public hearing was requested, and none was held.

Background and Purpose

The anchorage for nitrate laden vessels off Honolulu Harbor was a hold over from World War II and no longer needed. It encompassed much of the area available for commercial vessels to anchor off Honolulu Harbor. Eliminating the nitrate anchorage allows the establishment of four new anchorages and better usage of the available anchoring area. This rule brings the regulations in line with current practice.

Discussion of Comments

No comments were received during the comment period. No changes were made to the proposed rule.

Regulatory Evaluation

This rule is not considered a significant regulatory action under Executive Order 12866 and is not significant under the Department of Transportation Regulatory Policies and Procedures (44 FR 11040; February 26, 1979). The Coast Guard expects the economic impact of this rule to be so minimal that a Regulatory Evaluation is unnecessary. The only effect of this rule is to formally establish anchorage grounds for commercial vessels off Honolulu Harbor in areas where they presently anchor. The rule does not restrict access to any fairway or channel, or limit access to any facility or area previously accessible to vessels. The primary intent of the rule is to designate anchorages for commercial vessels of Honolulu Harbor.

Small Entities

The impact of this rule on a substantial number of small entities is expected to be minimal. Therefore, the Coast Guard certifies under section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) that this rule will not have a significant economic impact on a substantial number of small entities.

Collection of Information

This rule contains no collection of information requirements under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*).

Federalism

The Coast Guard has analyzed this rule in accordance with the principals and criteria contained in Executive Order 12612 and has determined that this rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environment

The Coast Guard considered the environmental impact of this rule and concluded that under section 2.B.2.c of Commandant Instruction M16475.1B, this rule is categorically excluded from further environmental documentation. A Categorical Exclusion Determination is available in the docket for inspection or copying where indicated under ADDRESSES.

List of Subjects in 33 CFR Part 110

Anchorage grounds

Regulations

For the reasons set out in the preamble, the Coast Guard amends 33 CFR Part 110 as follows:

PART 110—ANCHORAGE REGULATIONS

1. The authority citation for Part 110 continues to read as follows:

Authority: 33 U.S.C. 471, 2030, 2035 and 2071; 49 CFR 1.46 and 33 CFR 1.05-1(g) Section 110.1a and each section listed in 110.1a is also issued under 33 U.S.C. 1223 and 1231.

2. Section 110.235 is amended to read as follows:

§ 110.235 Pacific Ocean (Mamala Bay), Honolulu Harbor, Hawaii (Datum: NAD 83).

(a) The anchorage grounds—(1) Anchorage A. The waters bounded by the arc of a circle with a radius of 350 yards with the center located at:

Latitude	Longitude
21°16'57" N	157°53'12" W

(2) Anchorage B. The waters bounded by a line connecting the following coordinates:

Latitude	*Longitude*
21°17'06" N	157°54'40" W; to
21°17'22" N	157°54'40" W; to
21°17'22" N	157°54'19" W; to
21°17'06" N	157°54'19" W; and thence to
21°17'06" N	157°54'40" W

(3) Anchorage C. The waters bounded by the arc of a circle with a radius of 450 yards with the center located at:

Latitude	*Longitude*
21°17'09" N	157°54'55" W

(4) Anchorage D. The waters bounded by the arc of a circle with a radius of 450 yards with the center located at:

Latitude	*Longitude*
21°17'21" N	157°55'20" W

(b) The regulations. (1) Anchors must be placed inside the anchorage areas.

(2) The anchorages are general anchorages for commercial vessels. Anchorage A should be used only if Anchorages B, C, and D are full.

(3) No bunkering operations or vessel to vessel transfer of oil in bulk of any kind is permitted within Anchorage A.

(4) Nothing in this section shall be construed as relieving the owner or person in charge of any vessel from complying with the rules of navigation and with safe navigation practice.

Dated 28 July 1994

H.B. Gehring,

Commander, 14th CG District

[FR Doc. 94–19518 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–14–M

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33 CFR Part 165

[CGD13–94–023]

RIN–2115–AA97

Safety Zone Regulation; Reactor Compartment Move, Puget Sound, WA

AGENCY: Coast Guard, DOT.

ACTION: Temporary final rule.

SUMMARY: The Coast Guard is establishing a moving safety zone with a radius of 300 yards around the tugs BARBARA/RICHARD FOSS, the towline and the barge 60 while in transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of Latitude 47°32'N, Queets, Washington, at 12 p.m. (PDT) on August 11, 1994. The zone is needed to protect the tugs BARBARA/RICHARD FOSS and the barge 60 from safety hazards associated with onlookers and others who may wish to view the barge at close quarters. Entry into this zone is prohibited unless authorized by the Captain of the Port.

EFFECTIVE DATES: This regulation becomes effective on August 10, 1994 at 6 a.m. (PDT). It terminates when the tugs BARBARA/RICHARD FOSS and the barge are south of Latitude 47°32'N, Queets, Washington, at 12 p.m. (PDT) on August 11, 1994, unless sooner terminated by the Captain of the Port.

FOR FURTHER INFORMATION CONTACT:

LT J.D. Gafkjen, c/o Captain of the Port Puget Sound, 1519 Alaskan Way South, Seattle, Washington 98134, (206) 217–6232.

SUPPLEMENTARY INFORMATION: In accordance with 5 U.S.C. 553, a notice of proposed rulemaking was not published for this regulation and good cause exists for making it effective in less than 30 days after **Federal Register** publication. Publishing an NPRM and delaying its effective date would be contrary to the public interest since immediate action is needed to prevent potential hazards to the tugs BARBARA/RICHARD FOSS and the barge and other vessels that may transit the area. Less than 30 days notice was given to the Coast Guard by the U.S. Navy, thus, there was not sufficient time to publish proposed rules in advance of the event or to provide a delayed effective date. Following normal rulemaking procedures would be impracticable.

Drafting Information

The drafters of this regulation are LT J.D. Gafkjen, project officer for the Captain of the Port, and LT L.J. Argenti, project attorney, Thirteenth Coast Guard District Legal Office.

Discussion of Regulation

The event requiring this regulation will begin on August 10, 1994 at 6 a.m., PDT. Upon request by the U.S. Navy, the Coast Guard is establishing a 300 yard moving safety zone around the tugs BARBARA/RICHARD FOSS, the towline, and the barge 60 while the vessels are in transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of Latitude 47°32'N, Queets, Washington, at 12 p.m. (PDT) on August 11, 1994. This transit may result in a large number of vessels congregating near the tugs BARBARA/RICHARD FOSS and the barge or in their paths. Concern is justified due to the limited maneuverability of the tugs BARBARA/RICHARD FOSS and the barge and for the safety of the mariners who may attempt to approach the tugs BARBARA/RICHARD FOSS and the barge during their transit as well as other vessels in the immediate vicinity. This moving safety zone will be enforced by representatives of the Captain of the Port Puget Sound, Seattle, Washington. The Captain of the Port may be assisted by other federal agencies.

This Regulation is issued pursuant to 33 USC 1225 and 1231 as set out in the authority citation for all of Part 165.

Regulatory Evaluation

This temporary final rule is not a significant regulatory action under section 3(f) of Executive Order 12866 and does not require an assessment of potential costs and benefits under section 6(a)(3) of that order. It has been exempted from review by the Office of Management and Budget under that order. It is not significant under the regulatory policies and procedures of the Department of Transportation (DOT) (44 FR 11040, February 26, 1979). The Coast Guard expects the economic impact of this proposal to be so minimal that a full Regulatory Evaluation under paragraph 10e of the regulatory policies and procedures of DOT is unnecessary.

Federalism

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Assessment

This final rule has been thoroughly reviewed by the Coast Guard and determined to be categorically excluded from further environmental documentation in accordance with section 2.B.2.c. of Commandant Instruction M16475.1B. A Categorical Exclusion Determination statement has been prepared and placed in the rulemaking docket.

List of Subjects in 33 CFR Part 165

Harbors, Marine safety, Navigation (water), Reporting and recordkeeping requirements, Security measures, Waterways.

Regulation

In consideration of the foregoing, subpart C of Part 165 of Title 33, Code of Federal Regulations, is amended as follows:

PART 165—[AMENDED]

1. The authority citation for Part 165 continues to read as follows:

Authority: 33 U.S.C. 1231; 50 U.S.C. 191 33 CFR 1.05–1(g), 6.04–1, 6.04–6, and 160.5 49 CFR 1.46.

2. A new Section 165.T13–019 is added to read as follows:

§ 165.T13–019 Safety Zone: Puget Sound, WA.

(a) *Location.* The following area is a safety zone: All waters within 300 yards of the tugs BARBARA/RICHARD FOSS, the towline and the barge 60 while in

transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of latitude 47°32'N, Queets, Washington, at 12 p.m. (PDT) on August 11, 1994.

(b) *Regulations.* In accordance with the general regulations in Section 165.23 of this part, entry into this zone is prohibited, unless authorized by the Captain of the Port or his designated representatives. The designated representative of the Captain of the Port is any Coast Guard commissioned, warrant, or petty officer who has been authorized by the Captain of the Port Puget Sound, to act on his behalf.

(c) *Effective dates.* This section becomes effective on August 10, 1994, at 6 a.m. (PDT). It terminates when the tugs BARBARA/RICHARD FOSS and the barge are south of Latitude 47°32' N, Queets, Washington, at 12 p.m. (PDT) on August 11, 1994, unless sooner terminated by the Captain of the Port.

Dated: July 27, 1994.

J.E. Veentjer,

Commander, U.S. Coast Guard. Alternate Captain of the Port Puget Sound.

[FR Doc. 94–19530 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–14–M

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33 CFR Part 165

[CGD13–94–024]

RIN 2115–AA97

Safety Zone Regulation; Reactor Compartment Move, Puget Sound, WA

AGENCY: Coast Guard, DOT.

ACTION: Temporary final rule.

SUMMARY: The Coast Guard is establishing a moving safety zone 300 yards around the tugs BARBARA/RICHARD FOSS, the towline and the barge NESTUCCA while in transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of Latitude 47°32'N, Queets, Washington, at 8 a.m. (PDT) on August 18, 1994. The zone is needed to protect the tugs BARBARA/RICHARD FOSS and the barge NESTUCCA from safety hazards associated with onlookers and others who may wish to view the barge at close quarters. Entry into this zone is prohibited unless authorized by the Captain of the Port.

EFFECTIVE DATES: This regulation becomes effective on August 17, 1994 at 2 a.m. (PDT). It terminates when the tugs BARBARA/RICHARD FOSS and the barge are south of Latitude 47°32'N, Queets, Washington, at 8 a.m. (PDT) on August 18, 1994, unless sooner terminated by the Captain of the Port.

FOR FURTHER INFORMATION CONTACT: LT. J.D. Gafkjen, c/o Captain of the Port Puget Sound, 1519 Alaskan Way South, Seattle, Washington 98134, (206) 217–6232.

SUPPLEMENTARY INFORMATION: In accordance with 5 U.S.C. 553, a notice of proposed rulemaking was not published for this regulation and good cause exists for making it effective in less than 30 days after Federal Register publication. Publishing an NPRM and delaying its effective date would be contrary to the public interest since immediate action is needed to prevent potential hazards to the tugs BARBARA/RICHARD FOSS and the barge and other vessels that may transit the area. Less than 30 days notice was given to the Coast Guard by the U.S. Navy, thus, there was not sufficient time to publish proposed rules in advance of the event or to provide a delayed effective date. Following normal rulemaking procedures would be impracticable.

Drafting Information

The drafters of this regulation are LT J.D. Gafkjen, project officer for the Captain of the Port, and LT L.J. Argenti, project attorney, Thirteenth Coast Guard District Legal Office.

Discussion of Regulation

The event requiring this regulation will begin on August 17, 1994 at 2 a.m. (PDT). Upon request by the U.S. Navy, the Coast Guard is establishing a 300 yard moving safety zone around the tugs BARBARA/RICHARD FOSS, the towline, and the barge NESTUCCA while the vessels are in transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of Latitude 47°32'N, Queets, Washington, at 8 a.m. (PDT) on August 18, 1994. This transit may result in a large number of vessels congregating near the tugs BARBARA/RICHARD FOSS and the barge or in their paths. Concern is justified due to the limited maneuverability of the tugs BARBARA/RICHARD FOSS and the barge and for the safety of the mariners who may attempt to approach the tugs BARBARA/RICHARD FOSS and the barge during their transit as well as other vessels in the immediate vicinity. This moving safety zone will be enforced by representatives of the Captain of the Port Puget Sound, Seattle, Washington. The Captain of the Port may be assisted by other federal agencies.

This Regulation is issued pursuant to 33 USC 1231 as set out in the authority citation for all of Part 165.

Regulatory Evaluation

This temporary final rule is not a significant regulatory action under section 3(f) of Executive Order 12866 and does not require an assessment of potential costs and benefits under section 6(a)(3) of that order. It has been exempted from review by the Office of Management and Budget under that order. It is not significant under the regulatory policies and procedures of the Department of Transportation (DOT) (44 FR 11040, February 26, 1979). The Coast Guard expects the economic impact of this proposal to be so minimal that a full Regulatory Evaluation under paragraph 10e of the regulatory policies and procedures of DOT is unnecessary.

Federalism

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Assessment

This final rule has been thoroughly reviewed by the Coast Guard and determined to be categorically excluded from further environmental documentation in accordance with section 2.B.2.c. of Commandant Instruction M16475.1B. A Categorical Exclusion Determination statement has been prepared and placed in the rulemaking docket.

List of Subjects in 33 CFR Part 165

Harbors, Marine safety, Navigation (water), Reporting and recordkeeping requirements, Security measures, Waterways.

Regulation

In consideration of the foregoing, subpart C of Part 165 of Title 33, Code of Federal Regulations, is amended as follows:

PART 165—[AMENDED]

1. The authority citation for Part 165 continues to read as follows:

Authority: 33 U.S.C. 1231; 50 U.S.C. 191; 33 CFR 1.05–1(g), 6.04–1, 6.04–6, 160.5; 49 CFR 1.46.

2. A new section 165.T13–020 is temporarily added to read as follows:

§ 165.T13–020 Safety Zone: Puget Sound, WA.

(a) *Location.* The following area is a safety zone: All waters within 300 yards of the tugs BARBARA/RICHARD FOSS, the towline and the barge while in

transit from Puget Sound Naval Shipyard, Bremerton, Washington, through U.S. navigable waters until south of Latitude 47°32'N, Queets, Washington, at 8 a.m. (PDT) on August 18, 1994.

(b) *Regulations.* In accordance with the general regulations in Section 165.23 of this part, entry into this zone is prohibited, unless authorized by the Captain of the Port or his designated representative. The designated representative of the Captain of the Port is any Coast Guard commissioned, warrant, or petty officer who has been authorized by the Captain of the Port Puget Sound, to act on his behalf.

(c) *Effective dates.* This section becomes effective on August 17, 1994, at 2 a.m. (PDT). It terminates when the tugs BARBARA/RICHARD FOSS and the barge are south of Latitude 47°32'N, Queets, Washington, at 8 a.m. (PDT) on August 18, 1994, unless sooner terminated by the Captain of the Port.

Dated: July 27, 1994.

J.E. Veentjer,

Commander, U.S. Coast Guard, Alternate Captain of the Port Puget Sound.

[FR Doc. 94–19529 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–14–M

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[WI34–01–5765; FRL–4883–1]

Small Business Technical and Environmental Compliance Assistance Program; Wisconsin

AGENCY: Environmental Protection Agency (USEPA).

ACTION: Direct final rule.

SUMMARY: The USEPA approves the Wisconsin State Implementation Plan (SIP) revision submitted by the State of Wisconsin for the purpose of establishing a Small Business Stationary Source Technical and Environmental Compliance Assistance Program (PROGRAM). The implementation plan was submitted by the State to satisfy the Federal mandate, found in the Clean Air Act (Act), to ensure that small businesses have access to the technical assistance and regulatory information necessary to comply with the Act. The rationale for the approval is set forth in this document; additional information is available at the addresses indicated.

DATES: This direct final rule will be effective October 11, 1994, unless notice is received by September 9, 1994, that someone wishes to submit adverse comments. If the effective date is delayed, timely notice will be published in the **Federal Register**.

ADDRESSES: Comments can be mailed to Carlton Nash, Chief, Regulation Development Section, Air Toxics and Radiation Branch, United States Environmental Protection Agency, 77 West Jackson Boulevard (AT–18J), Chicago, Illinois 60604.

Copies of the State's submittal and USEPA's technical support document are available for inspection during normal business hours at the following locations:

United States Environmental Protection Agency, Region 5, Air and Radiation Division, 77 West Jackson Boulevard (AT–18J), Chicago, Illinois 60604; and

Wisconsin Department of Natural Resources, 101 South Webster Street, P.O. Box 7921, Madison, Wisconsin 53707.

A copy of this SIP revision is also available at the Office of Air and Radiation, Docket and Information Center (Air Docket 6102), room M1500, USEPA, 401 M Street, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: Constantine Blathras, USEPA (AT–18J), 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886–0671.

SUPPLEMENTARY INFORMATION:

I. Background

Implementation of the provisions of the Clean Air Act, as amended in 1990, ("CAA" or "the Act"), will require many small businesses to be regulated so that areas may attain and maintain the national ambient air quality standards (NAAQS) and the emission of air toxics will be reduced. Small businesses frequently lack the technical expertise and financial resources necessary to evaluate such regulations and to determine the appropriate mechanisms for compliance. In anticipation of the impact of these requirements on small businesses, the Act requires that States adopt a Small Business Stationary Source Technical and Environmental Compliance Assistance Program (PROGRAM), and submit this PROGRAM to be incorporated as a revision of the Federally approved SIP. In addition, the Act directs the USEPA to oversee these small business assistance programs and report to Congress on their implementation. The requirements for establishing a PROGRAM are set out in section 507 of Title V of the Act. In February 1992, USEPA issued Guidelines for the Implementation of section 507 of the 1990 Clean Air Act Amendments, in order to delineate the Federal and State roles in meeting the new statutory provisions and as a tool to provide further guidance to the States on submitting an acceptable PROGRAM.

In order to gain full approval, a State submittal must provide for each of the following PROGRAM elements: (1) The establishment of a Small Business Assistance Program (SBAP) to provide technical and compliance assistance to small businesses; (2) the establishment of a State Small Business Ombudsman to represent the interests of small businesses in the regulatory process; and (3) the creation of a Compliance Advisory Panel (CAP) to determine and report on the overall effectiveness of the SBAP.

On November 18, 1992 and January 21, 1993 the State of Wisconsin submitted such a PROGRAM to USEPA in order to satisfy the requirements of section 507. The submittals contained the following portions of 1991 Wisconsin Act 269 and 1991 Wisconsin Act 302: Natural Resources (NR) 144.36—small business stationary source technical and environmental compliance assistance program definitions; section 15.157(10) of the Wisconsin Statutes—small business environmental council members; section 560.11 of the Wisconsin Statutes—small business environmental council duties; NR 144.399—fees; section 560.03(9) of the Wisconsin Statutes—business and industrial development (small business ombudsman clearinghouse); and section 96—nonstatutory provisions of 1991 Assembly Bill 1055—development.

II. Analysis

1. Small Business Assistance Program

Section 507(a) sets forth six requirements that the State must meet to have an approvable SBAP.[1] The first requirement is to establish adequate mechanisms for developing, collecting and coordinating information concerning compliance methods and technologies for small business stationary sources, and programs to encourage lawful cooperation among such sources and other persons to further compliance with the Act. The State has met this requirement by requiring the Wisconsin Department of Natural Resources (WDNR) to develop information pertaining to the technical issues of regulations. The Wisconsin Department of Development (WDOD), the University of Wisconsin's Small Business Development Center—Solid

[1] A seventh requirement of Section 507(a), establishment of an Ombudsman office, is discussed in the next section.

and Hazardous Waste Education Center, and the University of Wisconsin-Extension Engineering Professional Development Center (University of Wisconsin-Extension) will assist WDNR in making the materials understandable to the layperson. Rule developers will also analyze the impact of new regulations on small business stationary sources to aid in the development of assistance materials. Advisory committees will be developed to encourage lawful cooperation and compliance with the Act. Advisory committees will also be involved during rule development, giving small businesses the opportunity to voice their concerns.

The second requirement is to establish adequate mechanisms for assisting small business stationary sources with pollution prevention and accidental release detection and prevention, including providing information concerning alternative technologies, process changes, products and methods of operation that help reduce air pollution. The State has met this requirement by promoting pollution prevention and hazardous waste minimization through several existing programs. Informational materials are developed by: WDNR's Pollution Prevention Office, WDNR's Bureau of Solid and Hazardous Waste, and the University of Wisconsin-Extension. WDOD's Hazardous Pollution Prevention Board coordinates and monitors hazardous pollution prevention, advises WDNR and the University of Wisconsin-Extension in their pollution prevention efforts, provides hazardous pollution prevention reports to the Governor and the State legislature, and awards pollution prevention audit grants to businesses and manufacturers.

The third requirement is to develop a compliance and technical assistance program for small business stationary sources which assists small businesses in determining applicable requirements and in receiving permits under the Act in a timely and efficient manner. The State has met this requirement by developing mechanisms to inform small business stationary sources about applicable requirements through WDNR's Bureau of Air Management and WDOD's Small Business Ombudsman's Office and Permit Information Center. These mechanisms include an 800 telephone service (1–800–HELP-BUSiness); permit applicability determinations; dissemination of written materials (including permit application process guidance); individual technical and business consultations; and potential permit application workshops.

The fourth requirement is to develop adequate mechanisms to assure that small business stationary sources receive notice of their rights under the Act in such manner and form as to assure reasonably adequate time for such sources to evaluate compliance methods and any relevant or applicable proposed or final regulation or standards issued under the Act. The State has met this requirement by establishing information dissemination mechanisms to ensure that small business stationary sources receive notice of their rights under the new regulations. These mechanisms include public notices and hearings on draft State rules; mailings to trade associations, small businesses, and representatives of small businesses; newspaper notices, radio and television announcements, and other media for widely disseminating information; and an 800 telephone service. Preliminary notices will also be disseminated prior to adoption of a final rule in order to allow businesses time to prepare for the impacts of a rule.

The fifth requirement is to develop adequate mechanisms for informing small business stationary sources of their obligations under the Act, including mechanisms for referring such sources to qualified auditors or, at the option of the State, for providing audits of the operations of such sources to determine compliance with the Act. The State has met this requirement by establishing information dissemination mechanisms to ensure that small business stationary sources receive notice of their obligations under new regulations. These mechanisms are the same as those listed above for notifying sources of their rights. In addition, Wisconsin has developed mechanisms for referring small business stationary sources to qualified auditors. These mechanisms include providing information on Hazardous Pollution Prevention Audit Grants, providing information through the University of Wisconsin-Extension Solid and Hazardous Waste Education Center, and developing a guide to assist small business stationary sources in hiring auditors. The SBAP may also develop a list of consultants which provide environmental compliance audits.

The sixth requirement is to develop procedures for consideration of requests from a small business stationary source for modification of: (A) Any work practice or technological method of compliance; or (B) the schedule of milestones for implementing such work practice or method of compliance preceding any applicable compliance date, based on the technological and financial capability of any such small business stationary source. The State has met this requirement by addressing such requests through permit revision procedures. The SBAP will assist businesses with the permit revision process.

2. Ombudsman

Section 507(a)(3) requires the designation of a State office to serve as the Ombudsman for small business stationary sources. The State has met this requirement by designating the WDOD as the Ombudsman, using several services offered by WDOD, including the Small Business Ombudsman Clearinghouse, the Permit Information Center, and the 800 telephone service. Two additional WDOD staff will be added to handle the additional responsibilities and workload that cannot be met through existing WDOD services. Wisconsin's Small Business Ombudsman performs many duties, including: serving as an information and assistance center for small businesses affected by the Act; assuming responsibility for program evaluation, information collection and dissemination, and dispute resolution for small businesses; and working with other State agencies and organizations that provide Act related services to small businesses to ensure that information is useful and efficiently provided.

3. Compliance Advisory Panel

Section 507(e) requires the State to establish a Compliance Advisory Panel (CAP) that must include two members selected by the Governor who are not owners or representatives of owners of small businesses; four members selected by the State legislature who are owners, or represent owners, of small businesses; and one member selected by the head of the agency in charge of the Air Pollution Permit Program. The number of CAP members will be appointed and consistent with statues according to section 507(e)(2).

In addition to establishing the minimum membership of the CAP, the Act delineates four responsibilities of the Panel: (1) To render advisory opinions concerning the effectiveness of the SBAP, difficulties encountered, and the degree and severity of enforcement actions; (2) to periodically report to USEPA concerning the SBAP's adherence to the principles of the Paperwork Reduction Act, the Equal Access to Justice Act, and the Regulatory Flexibility Act;[2] (3) to

[2] Section 507(e)(1)(B) requires the CAP to report on the compliance of the SBAP with these three

review and assure that information for small business stationary sources is easily understandable; and (4) to develop and disseminate the reports and advisory opinions made through the SBAP. The State has met these requirements by establishing the Small Business Environmental Council (SBEC) to meet these responsibilities. The SBEC consists of representatives of small businesses, the public, the WDNR and the WDOD, and oversee the activities of the SBAP to advise the program on how to improve its services. In addition, the Ombudsman staff and SBAP staff will provide support for the SBEC in its efforts to carry out these responsibilities.

4. Eligibility

Section 507(c)(1) of the Act defines the term "small business stationary source" as a stationary source that:

(A) Is owned or operated by a person who employs 100 or fewer individuals,

(B) Is a small business concern as defined in the Small Business Act;

(C) Is not a major stationary source;

(D) Does not emit 50 tons per year (tpy) or more of any regulated pollutant; and

(E) Emits less than 75 tpy of all regulated pollutants.

The State of Wisconsin has established a mechanism for ascertaining the eligibility of a source to receive assistance under the PROGRAM, including an evaluation of a source's eligibility using the criteria in section 507(c)(1) of the Act. Wisconsin intends to use these mechanisms only if the resources of the PROGRAM are abused by those for whom it was not intended, or if the PROGRAM becomes overburdened by providing assistance to sources which do not meet the small business stationary source definition. Pursuant to section 507(c)(2) of the Act, the State of Wisconsin has provided for public notice and comment on grants of eligibility to sources that do not meet the provisions of sections 507(c)(1)(C), (D), and (E) of the Act but do not emit more than 100 tpy of all regulated pollutants. In response to petition by a stationary source, WDNR may, by rule, extend the definition of small business stationary source as outlined above.

The State of Wisconsin has provided for exclusion from the small business stationary source definition, after consultation with the USEPA and the Small Business Administration Administrator and after providing notice and opportunity for public comment, of any category or subcategory of sources that the State determines to have sufficient technical and financial capabilities to meet the requirements of the Act. WDNR has the authority to narrow the definition in this manner through rulemaking.

III. This Action

The State of Wisconsin has submitted a SIP revision implementing each of the required PROGRAM elements required by section 507 of the Act. The Small Business Ombudsman elements began delivering assistance services in July 1993. The SBEC was fully functional by October 1993. The SBAP will be fully implemented by the effective date of Wisconsin's Title V Operating Permit Program, which may occur before November 1994. USEPA is, therefore, approving this submittal.

Because USEPA considers this final rule noncontroversial and routine, we are approving it today without prior proposal. This rule will become effective on October 11, 1994. However, if we receive notice by September 9, 1994, that someone wishes to submit adverse comments, then USEPA will publish: (1) A document that withdraws the action, and (2) a document that begins a new rulemaking by proposing the action and establishing a comment period.

This action has been classified as a Table 2 Action by the Regional Administrator under the procedures published in the **Federal Register** on January 19, 1989 (54 FR 2214–2225). A revision to the SIP processing review tables was approved by the Acting Assistant Administrator for Office of Air and Radiation on October 4, 1993 (Michael Shapiro's memorandum to Regional Administrators). A future document will inform the general public of these tables. On January 6, 1989 the Office of Management and Budget (OMB) waived Table 2 and 3 SIP revisions (54 FR 2222) from the requirement of section 3 of Executive Order 12291 for a period of two years. USEPA has submitted a request for a permanent waiver for Table 2 and Table 3 SIP revisions. The OMB has agreed to continue the waiver until such time as it rules on USEPA's request.

Nothing in this action should be construed as permitting, allowing or establishing a precedent for any future request for revision to any SIP. USEPA shall consider each request for revision to the SIP in light of specific technical, economic, and environmental factors and in relation to relevant statutory and regulatory requirements.

Under Executive Order 12866, 58 FR 51735 (October 4, 1993), USEPA must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, of State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, users fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. OMB has exempted this regulatory action from E.O. 12866 review.

Under the Regulatory Flexibility Act, 5 U.S.C. 600 *et seq.*, USEPA must prepare a regulatory flexibility analysis assessing the impact of any proposed or final rule on small entities. 5 U.S.C. 603 and 604. Alternatively, USEPA may certify that the rule will not have a significant impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and government entities with jurisdiction over populations of less than 50,000.

By this action, USEPA is approving a State program created for the purpose of assisting small businesses in complying with existing statutory and regulatory requirements. The program being approved today does not impose any new regulatory burden on small businesses; it is a program under which small businesses may elect to take advantage of assistance provided by the State. Therefore, because the USEPA's approval of this program does not impose any new regulatory requirements on small businesses, I certify that it does not have a significant economic impact on any small entities affected.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Small Business Assistance Program, Incorporation by reference.

Dated: April 5, 1994.

Valdas V. Adamkus,

Regional Administrator.

For the reasons set out in the preamble, part 52, chapter 1, title 40 of

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Federal statutes. However, since State agencies are not required to comply with them, U.S. EPA believes that the State PROGRAM must merely require the CAP to report on whether the SBAP is adhering to the general principles of these Federal statutes.

the Code of Federal Regulations is amended as follows:

PART 52 APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

Subpart YY—Wisconsin

2. Section 52.2570 is amended by adding paragraph (c)(72) to read as follows:

§ 52.2570 Identification of plan.

* * * * *

(c) * * *

(72) On November 18, 1992 and January 21, 1993, the State of Wisconsin submitted a Small Business Stationary Source Technical and Environmental Assistance Program for incorporation in the Wisconsin State Implementation Plan as required by Section 507 of the Clean Air Act. Included in the State's submittal were portions of 1991 Wisconsin Act 269 and 1991 Wisconsin Act 302.

(i) Incorporation by reference.

(A) Section 15.157(10)—small business environmental council—91–92 Wis. Stats., Effective date: May 14, 1992.

(B) Section 144.36—small business stationary source technical and environmental compliance assistance program—91–92 Wis. Stats., Effective date: May 14, 1992.

(C) Section 144.399(2)(c)—fees—91–92 Wis. Stats., Effective date: July 1, 1992.

(D) Section 560.03(9)—business and industrial development—91–92 Wis. Stats., Effective date: May 14, 1992.

(E) Section 560.11—small business environmental council—91–92 Wis. Stats., Effective date: May 14, 1992.

(F) Section 560, Subchapter III—permit information center—91–92 Wis. Stats., Effective date: November 17, 1983.

(G) Section 96—nonstatutory provisions; development—91 WisAct 302, 1991 Laws of Wisconsin. Effective date May 14, 1992.

(ii) Other material.

(A) Program description.

3. New section 52.2586 is added to subpart YY to read as follows:

§ 52.2586 Small business stationary source technical and environmental compliance assistance program.

The Wisconsin small business stationary source technical and environmental compliance assistance program submitted on November 18, 1992 and January 21, 1993, satisfies the requirements of Section 507 of the Clean Air Act.

[FR Doc. 94–19449 Filed 8–9–94; 8:45 am]
BILLING CODE 6560–50–P

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40 CFR Part 52

[MI26–01–6294B; FRL–5029–2]

Approval and Promulgation of Implementation Plan; Michigan

AGENCY: United States Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The United States Environmental Protection Agency is granting an exemption to the Detroit-Ann Arbor ozone nonattainment area from applicable oxides of nitrogen (NO_X) requirements found in the Clean Air Act (Act). Approval of the exemption would apply for various NO_X including adoption and implementation of regulations addressing general conformity, transportation conformity, inspection and maintenance, reasonably available control technology, and new source review. A NO_X exemption request was submitted by the State of Michigan on November 12, 1993. A subsequent letter dated May 31, 1994 clarified this earlier submittal. This request is based on the fact that the Detroit-Ann Arbor area has not monitored a violation of the ozone standard for a 3-year period; 1991 to 1993. Given this monitoring data, Michigan may petition for an exemption from the NO_X requirements based on a demonstration that additional reductions of NO_X would not contribute to attainment of the ozone standard.

The rationale for this approval is set forth in this final rule; additional information is available at the address indicated below. Elsewhere in this **Federal Register**, EPA is proposing approval of, and soliciting public comment on, this requested SIP revision. If a comment, or a notice of intent to comment is received on this direct final rule by August 25, 1994, EPA will then use this rulemaking as a proposed rule. Comments received will be addressed in a separate final rulemaking. Unless this final rule is commented upon, no further rulemaking will occur on this requested State Implementation Plan (SIP) revision.

This shortened comment period and expedited effective date is needed to follow provisions found in the Act which require EPA to either grant or deny exemption requests within 6 months of receipt. Although this notice may not be published within the timeframe specified by the Act, it is EPA's intention to try and publish as close to the 6 month deadline as possible.

DATES: This final rule will be effective September 9, 1994, unless notice is received within 15 days of this publication that someone wishes to submit adverse comments. If the effective date is delayed, timely notice will be published in the **Federal Register**.

ADDRESSES: Written comments should be sent to: Carlton T. Nash, Chief, Regulation Development Section, Air Toxics and Radiation Branch (AT–18J), EPA, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604–3590.

Copies of the request and the EPA's analysis are available for inspection at the following address: (It is recommended that you telephone Douglas Aburano at (312) 353–6960 before visiting the Region 5 office.) EPA, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604–3590.

FOR FURTHER INFORMATION CONTACT: Douglas Aburano, Air Toxics and Radiation Branch (AT–18J), EPA, Region 5, Chicago, Illinois 60604, (312) 353–6960.

SUPPLEMENTARY INFORMATION:

I. Background

On November 12, 1993 the State of Michigan submitted a petition to the EPA requesting that the Detroit-Ann Arbor ozone nonattainment area be exempted from the requirement to implement NO_X RACT controls pursuant to section 182(f) of the Act. The exemption request is based upon monitoring data which demonstrate that the ozone standard has been attained in the Detroit-Ann Arbor area for a 3-year period; 1991 through 1993.

II. Description and Analysis of State Submittal

The NO_X RACT petition was submitted in accordance with section 182(f) of the Act and a May 27, 1994 John Seitz memorandum entitled, "Section 182(f) Nitrogen Oxides (NO_X) Exemptions—Revised Process and Criteria." According to this memorandum and a December 1993 EPA guidance document entitled, Guideline for Determining the Applicability of Nitrogen Oxides Requirements Under Section 182(f), NO_X RACT and NSR requirements of section 182(f) do not apply if additional reductions of NO_X would not contribute to attainment of the NAAQS for ozone.

In an area that did not implement the section 182(f) NO_X requirements, but did attain the ozone standard, it is clear that the additional NO_X reductions required by section 182(f) would not contribute to attainment.

In its submittal, the State included data from ozone monitors for the most recently recorded years, 1991–1993. These data showed that over this 3-year period a violation of the ozone standard was not monitored in the Detroit-Ann Arbor area. This is the main criterion by which EPA judges 182(f) exemption petitions based on monitoring data. Given the fact that the Detroit-Ann Arbor area has not implemented the section 182(f) NO_X requirements and has submitted adequate monitoring data showing no violations of the ozone NAAQS over the last 3 years in the area, EPA finds that the State submittal is approvable.

Under the May 27, 1994 John Seitz memorandum and the December 1993 section 182(f) NO_X guidance referenced above, the section 182(f) demonstration cannot be approved if there is evidence, such as photochemical grid modeling, showing that the NO_X exemption would interfere with attainment or maintenance in the area petitioning for exemption or in any downwind areas. No such evidence exists.

III. Final Action

The EPA is granting the Detroit-Ann Arbor section 182(f) exemption petition based upon the evidence provided by the State and the State's compliance with the requirements outlined in the Act and in EPA guidance. However, it should be noted that this exemption is being granted on a contingent basis; i.e., the exemption will last for only as long as the area's ambient monitoring data continue to demonstrate attainment of the ozone NAAQS.

The EPA's transportation conformity rule [1] and EPA's general conformity rule [2] also reference the section 182(f) exemption process as a means for exempting affected areas from NO_X conformity requirements, and the conformity requirements apply on an areawide basis. Since this petition for exemption is areawide, as opposed to source-specific, an approval would also exempt this area from the NO_X conformity requirements of the Act (see John Seitz May 27, 1994 "Section 182(f) Nitrogen Oxides (NO_X) Exemptions—Revised Process and Criteria" memorandum). Additionally, the Inspection/Maintenance (I/M) Program Final Rule (57 FR 52950) allows for the omission of the basic I/M NO_X requirements if a 182(f) exemption is granted to an area. Michigan does not currently have—or need—an enhanced I/M program. However, if the State did adopt such a program (because further emissions reductions necessary to address other portions of the Act could be obtained through an enhanced program), it would have to be designed to offset NO_X increases resulting from the vehicle repairs due to hydrocarbon (HC) and carbon moNO$_X$ide (CO) failures.

If, subsequent to the NO_X waiver being granted, EPA determines that the area has violated the standard, the section 182(f) exemption, as of the date of the determination, would no longer apply. EPA would notify the State that the exemption no longer applies, and would also provide notice to the public in the **Federal Register**. If an exemption is revoked, the State must comply with any applicable NO_X requirements set forth in the Act, such as those for NO_X RACT, NSR, I/M, and conformity. The air quantity data relied on for the above determinations must be consistent with 40 CFR part 58 requirements and other relevant EPA guidance and recorded in EPA's Aerometric Information Retrieval System.

The **Federal Register** notice revoking the NO_X exemption would also establish the schedule for adoption and implementation of those NO_X requirements the area was previously exempt from.

On November 12, 1993 the State submitted a redesignation request. Section 175(A) requires submittal of a maintenance plan for areas that are redesignating to attainment. This maintenance plan must contain contingency measures which shall be implemented if a violation of the ozone standard occurs. Consequentially, the State's redesignation request is approved, the NO_X requirements found in the maintenance plan for that area would thereafter apply as long as the area is designated attainment for the ozone standard.

Because EPA considers this action noncontroversial and routine, we are approving it without prior proposal. This action will become effective on September 9, 1994. However, if we receive a notice of intent to comment by August 25, 1994, EPA will publish: (1) A document that withdraws today's action, and (2) address the comments received in the final rule on the requested SIP revision which has been proposed for approval in the proposed rules section of this **Federal Register**. The public comment will not be extended or reopened.

Miscellaneous

A. Applicability to Future SIP Decisions.

Nothing in this action should be construed as permitting, allowing or establishing a precedent for any future request for revision to any SIP. The EPA shall consider each request for revision to the SIP in light of specific technical, economic, and environmental factors and in relation to relevant statutory and regulatory requirements.

B. Executive Order 12866.

This action has been classified as a Table 2 action by the Regional Administrator under the procedures published in the **Federal Register** on January 19, 1989 (54 FR 2214–2225), as revised by an October 4, 1993 memorandum from Michael Shapiro, Acting Assistant Administrator for Air and Radiation. The OMB has exempted this regulatory action from E.O. 12866 review.

C. Regulatory Flexibility

Under the Regulatory Flexibility Act, 5 U.S.C. 600 *et seq.*, EPA must prepare a regulatory flexibility analysis assessing the impact of any proposed or final rule on small entities (5 U.S.C. 603 and 604). Alternatively, EPA may certify that the rule will not have a significant impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and government entities with jurisdiction over populations of less than 50,000.

This approval does not create any new requirements. Therefore, I certify that this action does not have a significant impact on any small entities affected. Moreover, due to the nature of the Federal-State relationship under the Act, preparation of the regulatory flexibility analysis would constitute Federal inquiry into the economic reasonableness of the State action. The Act forbids EPA to base its actions concerning SIPs on such grounds. *Union Electric Co. v. U.S. E.P.A.*, 427 U.S. 246, 256–66 (1976).

D. Petitions for Judicial Review

Under section 307(b)(1) of the Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by October 11, 1994. Filing a petition for reconsideration by the Administrator of this final rule does not

[1] "Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved under Title 23 U.S.C. of the Federal Transit Act" November 24, 1993 (58 FR 62188).

[2] "Determining Conformity of General Federal Actions to State or Federal Implementation Plans: Final Rule" November 30, 1993 (58 FR 63214).

affect the finality of this rule for the purposes of judicial review, nor does it extend the time within which a petition for judicial review may be filed and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements (see section 307(b)(2)).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Oxides of nitrogen, Incorporation by reference, Intergovernmental relations, Ozone.

Dated: July 19, 1994

Valdas V. Adamkus,

Regional Administrator

40 CFR part 52 is amended as follows.

PART 52—[AMENDED]

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7671(q)

Subpart X—Michigan

2. Section 52.1174 is amended by adding paragraph (c) to read as follows:

§ 52.1174 Control strategy: Ozone.

* * * * *

(c) Approval—On November 12, 1993, the Michigan Department of Natural Resources submitted a petition for exemption from the oxides of nitrogen requirements of the Clean Air Act for the Detroit-Ann Arbor ozone nonattainment area. The submittal pertained to the exemption from the oxides of nitrogen requirements for conformity, inspection and maintenance, reasonably available control technology, and new source review. These are required by sections 176(c), 182(b)(4), and 182(f) of the 1990 amended Clean Air Act, respectively.

[FR Doc. 94–19450 Filed 8–9–94; 8:45 am]

BILLING CODE 6560–50–P

FEDERAL EMERGENCY MANAGEMENT AGENCY

44 CFR Part 65

[Docket No. FEMA–7104]

Changes in Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency, FEMA.

ACTION: Interim rule.

SUMMARY: This interim rule lists communities where modification of the base (100-year) flood elevations is appropriate because of new scientific or technical data. New flood insurance premium rates will be calculated from the modified base (100-year) flood elevations for new buildings and their contents.

DATES: These modified base flood elevations are currently in effect on the dates listed in the table and revise the Flood Insurance Rate Map(s) (FIRMs) in effect prior to this determination for each listed community.

From the date of the second publication of these changes in a newspaper of local circulation, any person has ninety (90) days in which to request through the community that the Associate Director reconsider the changes. The modified elevations may be changed during the 90-day period.

ADDRESSES: The modified base flood elevations for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the following table.

FOR FURTHER INFORMATION CONTACT: Michael K. Buckley, P.E., Chief, Hazard Identification Branch, Mitigation Directorate, 500 C Street, SW., Washington, DC 20472, (202) 646–2756.

SUPPLEMENTARY INFORMATION: The modified base (100-year) flood elevations are not listed for each community in this interim rule. However, the address of the Chief Executive Officer of the community where the modified base flood elevation determinations are available for inspection is provided.

Any request for reconsideration must be based upon knowledge of changed conditions, or upon new scientific or technical data.

The modifications are made pursuant to section 201 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are in accordance with the National Flood Insurance Act of 1968, 42 U.S.C. 4001 et seq., and with 44 CFR part 65.

For rating purposes, the currently effective community number is shown and must be used for all new policies and renewals.

The modified base (100-year) flood elevations are the basis for the floodplain management measures that the community is required to either adopt or to show evidence of being already in effect in order to qualify or to remain qualified for participation in the National Flood Insurance Program.

These modified elevations, together with the floodplain management criteria required by 44 CFR 60.3, are the minimum that are required. They should not be construed to mean that the community must change any existing ordinances that are more stringent in their floodplain management requirements. The community may at any time enact stricter requirements of its own, or pursuant to policies established by other Federal, state or regional entities.

The changes in base flood elevations are in accordance with 44 CFR 65.4.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Associate Director, Mitigation Directorate, certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4105, and are required to maintain community eligibility in the National Flood Insurance Program. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This interim rule is not a significant regulatory action under the criteria of section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 12612, Federalism. This rule involves no policies that have federalism implications under Executive Order 12612, Federalism, dated October 26, 1987.

Executive Order 12778, Civil Justice Reform. This rule meets the applicable standards of section 2(b)(2) of Executive Order 12778.

List of Subjects in 44 CFR Part 65

Flood insurance, Floodplains, Reporting and recordkeeping requirements.

Accordingly, 44 CFR part 65 is amended to read as follows:

PART 65—[AMENDED]

1. The authority citation for part 65 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 65.4 [Amended]

2. The tables published under the authority of § 65.4 are amended as follows:

State and county	Location	Dates and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community No.
Illinois: Cook and Lake Counties.	Village of Arlington Heights.	June 9, 1994, June 16, 1994 *Daily Herald*	Ms. Arlene Mulder, President of the Village of Arlington Heights 33 South Arlington Heights Road, Arlington Heights, Illinois 60005.	Dec. 2, 1994	170056 B
Illinois: Will	City of Lockport	June 22, 1994, June 29, 1994, *Herald News*	The Honorable Richard G. Dystrup, Mayor of the City of Lockport, 222 East Ninth Street, Suite 4, Lockport, Illinois 60441–3497.	June 14, 1994	170703 B
Illinois: DuPage and Will (FEMA Docket No. 7079).	City of Naperville	Oct. 27, 1993, Nov. 3, 1993, *The Naperville Sun*	The Honorable Samuel T. Macrane, Mayor of the City of Naperville, 400 South Eagle Street, Naperville, Illinois 60566–7020.	Oct. 20, 1993	170213 C
Illinois: Cook County	Village of Orland Hills	June 30, 1994, July 7, 1994, *The Star.*	Mr. Kyle R. Hastings, President of the Village of Orland Hills, 16795 South 94th Avenue, Orland Hills, Illinois 60477.	June 24, 1994	170172 B
Indiana: Hamilton County	City of Carmel	June 1, 1994, June 8, 1994, *The Carmel News Tribune.*	The Honorable Ted Johnson, Mayor of the City of Carmel, One Civic Square, Carmel, Indiana 40032.	May 24, 1994	180081 C
Indiana: Hamilton County.	Town of Westfield	July 6, 1994, July 13, 1994, *Daily Ledger*	Mr. Jerry Rosenberger, Westfield Town Manager, 130 Penn Street, Westfield, Indiana 46074.	June 28, 1994	180083 C
Maryland: Prince Georges.	Unincorporated Areas of Prince Georges County.	Apr. 29, 1994, May 6, 1994, *Prince Georges Journal.*	Mow-Soung Cheng, Ph.D., P.E., Section Head, Floodplain Management Section, Prince Georges County Department of Environmental Resources, Inglewood III Office Building, 9400 Peppercorn Place, Sixth Floor, Landover, Maryland 20785.	Apr. 20, 1994	245208
New York: Orange	Village of Goshen	June 8, 1994, June 15, 1994, *Independent Republican.*	The Honorable George Lyons, Mayor of the Village of Goshen, 276 Main Street, Goshen, New York 10924.	May 31, 1994	361571 B
North Carolina: McDowell.	Town of Old Fort	July 13, 1994, July 20, 1994, *Old Fort Bulletin.*	The Honorable Wayne Stafford, Mayor of the Town of Old Fort, P.O. Box 908, Old Fort, North Carolina 28762.	To be determined	370149 B
Pennsylvania: Indiana County.	Borough of Indiana	July 1, 1994, July 8, 1994, *Indiana Gazette.*	The Honorable John D. Varner, Mayor of the Borough of Indiana, 80 North Eighth Street, Indiana, Pennsylvania 15701.	To be determined	420501 C

State and county	Location	Dates and name of newspaper where notice was published	Chief executive officer of community	Effective date of modification	Community No.
Wisconsin: La Crosse County.	City of La Crosse	June 8, 1994, June 15, 1994, *La Crosse Tribune.*	The Honorable Patrick Zielke, Mayor of the City of La Crosse, 400 La Crosse Street, La Crosse, Wisconsin 54601.	June 2, 1994	555562 B
Wisconsin: La Crosse .	Unincorporated Areas .	June 29, 1994, July 6, 1994, *La Crosse Tribune.*	Mr. James Ehrsam, Chairman of the La Crosse County Board of Supervisors, 400 North Fourth Street, La Crosse, Wisconsin 54601.	June 22, 1994	550217 A

(Catalog of Federal Domestic Assistance No. 83.100, "Flood Insurance.")

Dated: August 3, 1994.

Richard T. Moore,

Associate Director for Mitigation.

[FR Doc. 94–19508 Filed 8–9–94; 8:45 am]

BILLING CODE 6718–03–P

44 CFR Part 67

Final Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency (FEMA).

ACTION: Final rule.

SUMMARY: Base (100-year) flood elevations and modified base (100-year) flood elevations are made final for the communities listed below. The base (100-year) flood elevations and modified base flood elevations are the basis for the floodplain management measures that each community is required either to adopt or to show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

EFFECTIVE DATE: The date of issuance of the Flood Insurance Rate Map (FIRM) showing base flood elevations and modified base flood elevations for each community. This date may be obtained by contacting the office where the maps are available for inspection as indicated on the table below.

ADDRESSES: The final base flood elevations for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the table below.

FOR FURTHER INFORMATION CONTACT: Michael K. Buckley, P.E., Chief, Hazard Identification Branch, Mitigation Directorate, 500 C Street, SW., Washington, DC 20472, (202) 646–2756.

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency (FEMA or Agency) makes final determinations listed below of base flood elevations and modified base flood elevations for each community listed. The proposed base flood elevations and proposed modified base flood elevations were published in newspapers of local circulation and an opportunity for the community or individuals to appeal the proposed determinations to or through the community was provided for a period of ninety (90) days. The proposed base flood elevations and proposed modified base flood elevations were also published in the **Federal Register**.

This final rule is issued in accordance with section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and 44 CFR part 67.

The Agency has developed criteria for floodplain management in floodprone areas in accordance with 44 CFR part 60.

Interested lessees and owners of real property are encouraged to review the proof Flood Insurance Study and Flood Insurance Rate Map available at the address cited below for each community.

The base flood elevations and modified base flood elevations are made final in the communities listed below. Elevations at selected locations in each community are shown.

National Environmental Policy Act. This rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Associate Director, Mitigation Directorate, certifies that this rule is exempt from the requirements of the Regulatory Flexibility Act because final or modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and are required to establish and maintain community eligibility in the National Flood Insurance Program. No regulatory flexibility analysis has been prepared.

Regulatory Classification. This final rule is not a significant regulatory action under the criteria of section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 12612, Federalism. This rule involves no policies that have federalism implications under Executive Order 12612, Federalism, dated October 26, 1987.

Executive Order 12778, Civil Justice Reform. This rule meets the applicable standards of section 2(b)(2) of Executive Order 12778.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, Flood insurance, Reporting and recordkeeping requirements.

Accordingly, 44 CFR part 67 is amended as follows:

PART 67—[AMENDED]

1. The authority citation for part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

§ 67.11 [Amended]

2. The tables published under the authority of § 67.11 are amended as follows:

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
FLORIDA	
St. Petersburg (city), Pinellas County (FEMA Docket No. 7078)	
Boca Ciega Bay:	
At intersection of Villagrande Avenue and Grevilla Avenue	*12
Approximately 50 feet southwest of the intersection of Hibiscus Avenue South and Villagrande Avenue	*13
Maps available for inspection at the Municipal Services Building, 475 Central Avenue, St. Petersburg, Florida.	
ILLINOIS	
Grundy County (unincorporated areas) (FEMA Docket No. 7091)	
East Fork Nettle Creek:	
At Interstate 80 (downstream county boundary)	*533
Approximately 0.9 mile upstream of Gore Road	*555
Maps available for inspection at the Grundy County Administration Building, 1320 Union Street, Morris, Illinois.	
MICHIGAN	
Marquette (city), Marquette County (FEMA Docket No. 7078)	
Carp River:	
At the Lake Superior and Ishpeming Railroad	*607
Approximately 820 feet upstream of U.S. Route 41	*611
Maps available for inspection at the Municipal Services Center, Public Works Department, 850 West Baraga Avenue, Marquette, Michigan.	
MINNESOTA	
Stearns County, Unincorporated Areas (FEMA Docket No. 7078)	
Sauk River:	
Approximately 200 feet upstream of confluence with Mississippi River	*998
Approximately 1 mile downstream of County Highway 121 Bridge	*1,056
Mississippi River:	
Approximately 0.85 mile downstream of St. Cloud Dam	*971
At downstream side of Minnesota Highway 152 Bridge	*992
Maps available for inspection at the Stearns County Administration Building, Planning Department, Room 343, 705 Courthouse Square, St. Cloud, Minnesota.	
St. Cloud (city), Stearns, Benton, and Sherburne Counties (FEMA Docket No. 7078)	
Sauk River:	
Approximately 3,100 feet (0.6 mile) upstream of confluence with Mississippi River	*1,004
Approximately 1.0 mile upstream of confluence with Mississippi River	*1,011
At abandoned County Highway 134 bridge	*1,048
Mississippi River:	
Approximately 0.82 mile downstream of St. Cloud Dam	*971
Approximately 3 miles upstream of St. Cloud Dam	*992
Maps available for inspection at the City Hall, 400 Second Street South, St. Cloud, Minnesota.	
Waite Park (city), Stearns County (FEMA Docket No. 7078)	
Sauk River:	
At Burlington Northern Railroad Bridge	*1,044
Approximately 1.2 miles upstream of Burlington Northern Railroad Bridge	*1,047
Maps available for inspection at the City Hall, 253 Fifth Avenue North, Waite Par, Minnesota.	
NORTH CAROLINA	
Cabarrus County (unincorporated areas) (FEMA Docket No. 7073)	
Adams Creek:	
At confluence with Dutch Buffalo Creek	*518
Upstream side of State Route 73	*631
Afton Run:	
Approximately 0.55 mile upstream of Coddle Creek	*606
At Dogwood Boulevard	*666
Back Creek:	
Approximately 450 feet upstream of State Route 1158 (Pharr Mill Road)	*541
Approximately 0.57 mile upstream of County Route 1173 (Caldwell Road)	*614
Caldwell Creek:	
At confluence with Reedy Creek	*544
Approximately 1.31 miles upstream of State Route 1135 (Morrison Road)	*625
Clarke Creek:	
Upstream side of County Route 1448	*607
Approximately 0.25 mile upstream of Harris Road	*632
Dutch Buffalo Creek:	
Approximately 0.19 mile downstream of State Route 200	*507
At upstream side of State Route 73	*525
Fuda Creek:	
At confluence with Back Creek	*565
Approximately 0.25 mile upstream of Picadilly Lane	*676
McKee Creek:	
At confluence with Reedy Creek	*577
Approximately 0.85 mile upstream of Peach Orchard Road	*603
Reedy Creek:	
Approximately 0.26 mile upstream of confluence with Rocky River	*534
Approximately 0.78 mile upstream of confluence of Reedy Creek Tributary #1	*608
Reedy Creek Tributary #1:	
At confluence with Reedy Creek	*602
Upstream side of Plaza Road Extension	*622
Maps available for inspection at the Cabarrus County Government Center, 65 Church Street, Concord, North Carolina.	
Concord (city), Cabarrus County (FEMA Docket No. 7073)	
Afton Run:	
Approximately 300 feet downstream of County Route 1430	*610
Upstream side of Interstate Route 85	*620
Maps available for inspection at City Hall, Concord, North Carolina.	
Harrisburg (town), Cabarrus County (FEMA Docket No. 7073)	
Back Creek:	

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
Approximately 1.9 miles downstream of Robinson Church Road	*585
At downstream side of Caldwell Road	*608
Maps available for inspection at the Town Hall, Harrisburg, North Carolina.	
OHIO	
Clermont (county) (FEMA Docket No. 7073)	
East Fork Little Miami River:	
Approximately 0.2 mile upstream of confluence with Little Miami River	*512
Approximately 2.4 miles upstream of State Route 222	*601
Stonelick Creek:	
At confluence with East Fork Little Miami River	*539
Approximately 200 feet upstream of confluence with East Fork Little Miami River	*539
Maps available for inspection at the Building Inspection Office, 2400 Clermont Center Drive, 2nd Floor, Suite 202, Batavia, Ohio.	
Milford (city) Clermont and Hamilton counties (FEMA Docket No. 7073)	
East Fork Little Miami River:	
Approximately 1,003 feet upstream of confluence with Little Miami River	*512
Approximately 0.4 mile upstream of Interstate Route 275	*518
Maps available for inspection at the City Hall, 29 High Street, Milford, Ohio.	
PENNSYLVANIA	
Allentown (city), Lehigh County (FEMA Docket No. 7093)	
Trout Creek:	
Approximately 1,180 feet upstream of confluence with Little Lehigh Creek	*252
At South Albert Street	*354
Maps available for inspection at the City Hall, Engineering Department, 4th Floor, Room 411, 435 Hamilton Street, Allentown, Pennsylvania	
SOUTH CAROLINA	
Aiken County (unincorporated areas) (FEMA Docket No. 7079)	
Savannah River:	
At the Savannah River Atomic Energy Commission Plant Reservation Boundary	*107
Approximately 500 feet upstream of Interstate 20	*147
Hollow Creek:	
At the confluence with Savannah River	*116
Approximately 0.5 mile downstream of Silver Bluff Road	*120
No Name Creek To Dead River:	
At the confluence with Dead River	*129
Approximately 1,200 feet upstream of Seaboard Coastline Railroad	*132
No Name Creek to Savannah River:	
At the confluence with Savannah River	*132
Approximately 0.95 mile upstream of confluence with Savannah River	*138
Horse Creek:	
At the confluence with Savannah River	*133
Approximately 700 feet downstream of confluence of Little Horse Creek	*139
Fox Creek:	
At confluence with Savannah River	*147
Approximately 100 feet upstream of confluence with Savannah River	*147
Maps available for inspection at the Aiken County Planning and Development Office, 1680 Richland Avenue, Suite 130, Aiken, South Carolina 29801.	
TENNESSEE	
Bartlett (city), Shelby County (FEMA Docket No. 7058)	
Harrington Creek:	
About 600 feet downstream of confluence of Harrington Creek Lateral A	*253
Just upstream of Yale Road	*272
Harrington Creek Lateral F:	
At mouth	*270
Just upstream of Yale Road	*273
Harrington Creek Lateral A:	
At mouth	*253
About 900 feet upstream of mouth	*253
Harrington Creek Lateral E:	
At mouth	*268
Just upstream of Bartlett Boulevard	*270
Fletcher Creek Lateral A:	
Just upstream of Stage Road	*270
About 0.5 mile upstream of Appling Road	*295
Fletcher Creek Lateral C:	
At mouth	*273
Just downstream of CSX Railroad	*297
Fletcher Creek Lateral D:	
At confluence with Fletcher Creek Lateral C	*277
About 1,250 feet upstream of confluence with Fletcher Creek Lateral C	*284
Maps available for inspection at the Department of Public Works, 3585 Altruria Road, Bartlett, Tennessee.	
Collierville (town), Shelby County (FEMA Docket No. 7058)	
Nonconnah Creek:	
About 0.9 mile upstream of Bailey Station Road	*324
Just downstream of Quinn Road	*362
Nonconnah Creek Lateral C:	
At mouth	*342
About 950 feet upstream of mouth	*345
Wolf River Lateral J:	
At mouth	*286
Just downstream of Shelton Road	*292
Maps available for inspection at the Department of Public Services, 167 Washington Street, Collierville, Tennessee.	
Germantown (city), Shelby County (FEMA Docket No. 7058	
Wolf River Lateral B:	
At mouth	*261
About 500 feet downstream of Hollow Fork Road	*261
Maps available for inspection at the Department of Engineering, 1930 South Germantown Road, Germantown, Tennessee.	
Memphis (city), Shelby County (FEMA Docket No. 7058)	
Nonconnah Creek:	
At mouth	*225
About 2,900 feet upstream of Winchester Road	*297
John's Creek:	
At mouth	*262
Just upstream of Knight Arnold Road	*270
Tenmile Creek:	
At mouth	*253
About 1,850 feet downstream of Knight Arnold Road	*255
Howard Road Outfall:	
At mouth	*278
Just downstream of Quince Road	*280
Harrington Creek:	
At mouth	*24

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
Just downstream of confluence of Harrington Creek Lateral A	*253
Fletcher Creek:	
At mouth	*245
Just upstream of Whitten Road	*264
Wolf River Lateral A:	
At mouth	*258
Just downstream of confluence of Wolf River Lateral AA	*258
Maps available for inspection at the City Department of Engineering, 125 North Mid America Mall, Memphis, Tennessee	
Millington (city), Shelby County (FEMA Docket No. 7058)	
Big Creek Drainage Canal:	
About 2,300 feet downstream of U.S. Route 51	*254
About 3,400 feet upstream of Singleton Parkway	*270
Royster Creek:	
At mouth	*255
Just downstream of Shelby Road	*259
North Fork Creek:	
At mouth	*260
About 0.5 mile downstream of U.S. Route 51	*268
Maps available for inspection at the City Hall, Millington, Tennessee	
Shelby County (unincorporated areas) (FEMA Docket No. 7058)	
Big Creek Drainage Canal:	
At mouth	*234
At county boundary	*320
Bear Creek:	
At mouth	*246
At county boundary	*307
Jakes Creek:	
At mouth	*249
About 1,500 feet upstream of Shake Rag Road	*260
Royster Creek:	
Just downstream of Shelby Road	*259
At county boundary	*292
North Fork Creek:	
About 0.5 mile downstream of U.S. Route 51	*268
Just downstream of Dam No. 5	*279
Just upstream of Dam No. 5	*296
At county boundary	*304
Casper Creek:	
At mouth	*273
About 1,400 feet above mouth	*274
Bear Creek Lateral A:	
At mouth	*265
About 1,200 feet upstream of Chambers Road	*270
Wolf River:	
Just upstream of Germantown Road	*262
About 0.9 mile upstream of Collierville Arlington Road	*293
Wolf River Lateral F:	
About 1,000 feet upstream of mouth	*271
About 0.5 mile upstream of mouth	*272
Gray's Creek:	
At mouth	*273
About 0.6 mile upstream of mouth	*276
Wolf River Lateral H:	
At mouth	*279
About 1.25 miles upstream of mouth	*284
Wolf River Lateral I:	
At mouth	*281
About 1.0 mile upstream of mouth	*294
Wolf River Lateral 1A:	
At mouth	*284
About 1,100 feet downstream of Shelton Road	*294
Wolf River Lateral K:	
Within community	*291
Fletcher Creek:	
Just upstream of Whitten Road	*294
Just downstream of U.S. Route 64	*304
Fletcher Creek Lateral B:	
Just upstream of Whitten Road	*291
About 300 feet upstream of Macon Road	*303
Fletcher Creek Lateral BB:	
At mouth	*291
About 1,000 feet upstream of mouth	*291
Fletcher Creek Lateral A:	
At mouth	*263
Just upstream of Germantown Road	*309
Nonconnah Creek:	
Approximately 500 feet downstream of confluence of Howard Road Outfall	*279
Approximately 500 feet upstream of Field Road	*256
Nonconnah Creek Lateral J:	
At mouth	*284
About 0.5 mile above mouth	*286
Nonconnah Creek Lateral B:	
At mouth	*317
About 900 feet downstream of Shelby Drive	*319
Nonconnah Creek Lateral BA:	
At mouth	*317
About 700 feet upstream of mouth	*319
Maps available for inspection at the Memphis-Shelby County Office of Construction Code Enforcement, 160 North Mid America Mall, Memphis, Tennessee.	

VIRGINIA	
Dumfries (town), Prince William County (FEMA Docket No. 7093)	
Quantico Creek:	
At downstream corporate limits	*8
Approximately 200 feet downstream of the northbound lane of I-95	*28
Tributary No. 1 to Quantico Creek:	
At confluence with Quantico Creek	*27
Approximately 100 feet upstream of the confluence with Quantico Creek	*27
Maps available for inspection at the Dumfries Town Hall, Zoning Administrator's Office, 101 South Main Street, Dumfries, Virginia.	
Haymarket (town), Prince William County (FEMA Docket No. 7093)	
North Fork Broad Run:	
At downstream corporate limits	*384
At upstream corporate limits	*390
Maps available for inspection at the Haymarket Town Hall, 15025 Washington Street, Haymarket, Virginia.	
Manassas (city), Prince William County (FEMA) Docket No. 7093)	
Broad Run:	
At downstream corporate limits	*175
At upstream corporate limits	*178
Maps available for inspection at the City Engineer's Office, 9027 Center Street, Suite 203, Manassas, Virginia.	
Manassas Park (city), Prince William County (FEMA Docket No. 7093)	
Flat Branch Tributary B:	
At downstream corporate limits	*165
Approximately 200 feet upstream of corporate limits	*165

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
Maps available for inspection at the City Hall, One Park Center Court, Manassas Park, Virginia.	
Occoquan (town), Prince William County (FEMA Docket No. 7093)	
Occoquan River:	
At downstream corporate limits	*13
At upstream corporate limits	*18
Maps available for inspection at the Occoquan Town Hall, Office of the Town Clerk, 314 Mill Street, Occoquan, Virginia.	
Prince William County and Incorporated Areas (FEMA Docket No. 7093)	
Broad Run:	
At confluence with Occoquan River	*173
At T. Nelson Elliott Dam	*250
Bull Run:	
At confluence with Occoquan River	*137
Approximately 100 feet upstream of State Route 615	*412
Bull Run Tributary D:	
At the confluence with Bull Run	*166
At State Route 234	*217
Catharpin Creek:	
At confluence with Little Bull Run	*264
Approximately 100 feet downstream of Lighter Road	*309
Cow Branch:	
Approximately 1,150 feet upstream of confluence with Neabsco Creek at upstream side of Nippon Road	*8
Approximately 2,000 feet upstream of Telegraph Road	*161
Dawkins Branch:	
At confluence with Broad Run	*204
Approximately 75 feet upstream of Southern Railroad	*261
Flat Branch:	
At confluence with Bull Run	*164
Approximately 950 feet upstream of State Route 668 (Rixlew Lane)	*219
Holkums Branch:	
At confluence with Bull Run	*174
Approximately 0.4 mile upstream of State Route 234	*246
Kettle Run:	
At confluence with Buil Run	*174
Approximately 0.6 mile upstream of State Route 656 (Kettle Run Road)	*224
Little Bull Run:	
At confluence with Bull Run	*193
Approximately 1.6 miles upstream of State Route 704 (Artemus Road)	*374
Little Creek:	
At confluence with Quantico Creek	*8
Approximately 40 feet upstream of Inn Road	*135
Marumsco Creek:	
Approximately 500 feet downstream of Featherstone Road	*9
Approximately 0.4 mile upstream of Hylton Avenue	*108
Neabsco Creek:	
Approximately 0.64 mile downstream of U.S. Route 1	*9
Approximately 950 feet upstream of Prince Dale Drive	*189
Neabsco Creek Tributary A:	
At confluence with Neabsco Creek	*189
Approximately 1.8 miles upstream of State Route 784	*326
North Fork Broad Run:	
At confluence with Lake Manassas	*292
Approximately 50 feet upstream of State Route 1701 (Gaines Road)	*434
Occoquan River Broad Run:	
At confluence with the Potomac River	*8
At confluence of Cedar Run and Powells Creek	*173
At confluence with the Potomac River	*8
Approximately 1,070 feet upstream of Minnieville Road	*253
Purcell Branch:	
Confluence with Occoquan River	*149
Approximately 1 mile upstream of Purcell Road (State Route 634)	*239
Rocky Branch:	
Confluence with Broad Run	*220
Approximately 100 feet upstream of State Route 619 (Linton Hall Road)	*312
Quantico Creek:	
At confluence with the Potomac River	*8
Approximately 200 feet upstream of confluence with South Fork Quantico Creek	*61
Bull Run Tributary A:	
At confluence with Bull Run	*159
D*Approximately 580 feet downstream of Oak Street	163
Bull Run Tributary B:	
At confluence with Bull Run	*161
At East Rugby Road	*164
Bull Run Tributary C:	
At confluence with Bull Run	*164
Downstream of Parkland Street	*168
Cannon Branch:	
At confluence with Broad Run	*175
Approximately 3,250 feet upstream of confluence with Broad Run	*175
Cedar Run:	
At confluence with Occoquan River	*173
Approximately 0.7 mile upstream of confluence	*173
Flat Branch Tributary A:	
At confluence with Flat Branch	*170
Approximately 600 feet upstream of confluence with Flat Branch	*172
Flat Branch Tributary B:	
At confluence with Flat Branch	*165
At City of Masassas Park corporate limits	*165
Flat Branch Tributary C:	
At confluence with Flat Branch	*182
Approximately 770 feet upstream of confluence with Flat Branch	*182
Hooes Run:	
At confluence with Occoquan River	*132
Approximately 1,000 feet upstream of State Route 641	*132
Lake Manassas:	
Entire shoreline	*292
Tributary No. 3 to Flat Branch Tributary B:	
Approximately 20 feet upstream of confluence with Flat Branch Tributary B	*165
Approximately 100 feet upstream of confluence with Flat Branch Tributary B	*165
Potomac River:	
From Freestone Point to confluence of Chopawamsic Creek	*8
Chopawamsic Creek:	
At confluence with Potomac River	*8
Approximately 0.9 mile downstream of Jefferson Davis Highway	*8
Maps available for inspection at the Prince William County Department of Public Works, Watershed Management Division, 4379 Ridgewood Center Drive, Prince William, Virginia.	
Quantico (town), Prince William County (FEMA Docket No. 7093)	
Potomac River (formerly Little Creek):	
Just upstream of River Road	*8
Just downstream of Richmond, Fredericksburg and Potomac Railroad	*8
Potomac River:	
Approximately 250 feet east of Potomac Avenue	8

Source of flooding and location	# Depth in feet above ground. * Elevation in feet (NGVD)
Approximately 400 feet north of the intersection of Broadway and Third Street	*8

Maps available for inspection at the Town of Quantico Treasurer/Clerk's Office, 507 C Street, Quantico, Virginia.

(Catalog of Federal Domestic Assistance No. 83.100, "Flood Insurance.")

Dated: August 3, 1994.

Richard T. Moore,

Associate Director for Mitigation.

FR Doc. 94–19507 Filed 8–9–94; 8:45 am]

BILLING CODE 6718–03–P

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 14, and 24

[GEN Docket No. 90–314]

Broadband Personal Communications Services

AGENCY: Federal Communications Commission.

ACTION: Final rule; correction.

SUMMARY: This document contains corrections to the final regulations, which were published Friday, June 24, 1994 (59 FR 32830). The regulations related to the allocation and service rules for Broadband Personal Communications Services.

EFFECTIVE DATE: September 9, 1994.

FOR FURTHER INFORMATION CONTACT: Tom Mooring, Office of Engineering and Technology, (202) 653–8114.

SUPPLEMENTARY INFORMATION:

Need for Correction

As published, the final regulations contain errors that need to be corrected in order to ensure that the Commission's decision is properly implemented.

Correction of Publication

Accordingly, the publication on June 24, 1994 of the final regulations, which were the subject of FR Doc. 94–15263, is corrected as follows:

§ 2.106 [Corrected]

1. On page 32851, in Column (5) of the Table of Frequency Allocations, in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands, the lower-case word "fixed" is corrected to read as the upper-case word "FIXED" and the lower-case word "mobile" is corrected to read the upper-case "MOBILE".

2. On page 32851, in Column (5) of the Table of Frequency Allocations, in the 2150–2160 MHz band, the low-case word "fixed" is corrected to read as the upper-case word "FIXED".

§ 15.319 [Corrected]

3. On page 32852, in the third column, paragraph (a), line 4 "15.323" is corrected to read "15.321".

4. On page 32852, in the third column, paragraph (a), line 6 "15.321" is corrected to read "15.323".

§ 15.321 [Corrected]

5. On page 32853, in column 1, paragraph (d), lines 4, 5, 7 and 8, "channel" is corrected to read "sub-band".

§ 15.323 [Corrected]

6. On page 32853, in column 2, paragraph (c)(1), line 4, the phrase "for a period of 10 milliseconds" is inserted after the word "transmit" and before the word "to".

7. On page 32854, in the first column, before the heading for Part 24, the following instruction 10. is added:

10. Section 15.323(c)(5) is revised and an additional sentence is added to paragraph 15.323(c)(5) and the last sentence of paragraph 15.323(e) is revised to read as follows:

Section 15.323 Specific requirements for isochronous devices operating in the 1920–1930 MHz sub-band.

* * * * *

(c) * * *

(5) * * * No device or group of cooperating devices located within 1 meter of each other shall occupy more than three 1.25 MHz channels. Devices in an operational state that are utilizing the provision of this section are not required to use the search provisions of paragraph (b) of this section.

* * * * *

(e) * * * Transmission shall be continuous in every time and spectrum window during the frame period defined for the device.

* * * * *

8. On page 32854, in column 1, paragraph (d), line 6 of that page, the word "mission" is corrected to read "emission".

9. On page 32854, in column 1, paragraph (d), line 11 of that page, the number "40" is corrected to read "30".

10. On page 32854, in column 1, paragraph (d), line 13 of that page, the symbol "B" is corrected to read "2B".

§ 24.202 [Corrected]

11. On page 32855, in column 1, paragraph (b), lines 7, 10 and 17, the word "Mayaguez" is corrected to read "Mayagüez".

12. On page 32855, in column 1, paragraph (b), lines 11 and 21, the word "BTA" is corrected to read BTA-like service area".

13. On page 32855, in column 1, paragraph (b), lines 12 and 22, the word "municipalities" is corrected to read "municipios".

14. On page 32855, in column 1, paragraph (b), line 13, the word "Anasco" is corrected to read "Añasco".

15. On page 32855, in column 1, paragraph (b), line 14, the word "Guanica" is corrected to read "Guánica".

16. On page 32855, in column 1, paragraph (b), line 16, the word "Juana Diaz" is corrected to read "Juana Díaz".

17. On page 32855, in column 1, paragraph (b), line 16, the word "Las Marias" is corrected to read "Las Marías".

18. On page 32855, in column 1, paragraph (b), line 18, the word "Penuelas" is corrected to read "Peñuelas".

19. On page 32855, in column 1, paragraph (b), line 19, the word "Rincon" is corrected to read "Rincón".

20. On page 32855, in column 1, paragraph (b), lines 19 and 20, the word "San Germain" is corrected to read "San Germán".

§ 24.238 [Corrected]

21. On page 32858, in column 1, paragraph (a) the word "lesserattenuation" is corrected to read "lesser attenuation". Additionally, add the following sentences immediately after the first sentence and before the Note: "Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. Nominal carrier frequency shall be adjusted as close to the licensee's frequency block edge as the design permits. Where emissions within the licensee's frequency block influence the levels measured outside the block sufficiently to show non-compliance, alternative techniques may be used provided the technique is coordinated with the Commission."

Federal Communications Commission.

William F. Caton,

Acting Secretary.

[FR Doc. 94–19491 Filed 8–9–94; 8:45 am]

BILLING CODE 6712–01–M

Proposed Rules

Federal Register
Vol. 59, No. 153
Wednesday, August 10, 1994

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Office of the Secretary

14 CFR Parts 257 and 399

[Docket Nos. 49702 and 48710; Notice 94–11]

RIN 2105–AC10

Disclosure of Code-Sharing Arrangements and Long-Term Wet Leases

AGENCY: Department of Transportation; Office of the Secretary.

ACTION: Notice of Proposed Rulemaking (NPRM); Denial of petition for rulemaking.

SUMMARY: The Department proposes to strengthen its current rules requiring airlines to notify consumers of the existence of a code-sharing arrangement or long-term wet lease whereby the operator of a flight differs from the airline in whose name the transportation was sold. This action is being taken to ensure that consumers have pertinent information about airline code-sharing arrangements and long-term wet leases on domestic and international flights. The Department is proposing: (1) to require ticket agents (including travel agents) doing business in the United States and foreign air carriers, as well as U.S. air carriers, to give consumers reasonable and timely notice that the travel they are considering purchasing will be provided by an airline different from the airline holding out the transportation, and to disclose the identity of the airline that will actually operate the aircraft; and (2) for tickets issued in the United States, to require U.S. and foreign air carriers and ticket agents (including travel agents) to provide written notice of the transporting carrier's identity at the time of sale of transportation involving a code-sharing or long-term wet-lease arrangement. The Department also wants to consider seriously a requirement to print the transporting carrier's identity on the flight coupon for services involving a code-sharing or long-term wet-lease arrangement. The Department is making this proposal on its own initiative. In addition, the Department is denying a petition filed in Docket 48710 by Donald Pevsner that requested a complete ban on code-sharing arrangements.

DATES: The Department requests comments by October 11, 1994. Reply comments should be filed by November 8, 1994. The Department will consider late-filed comments only to the extent practicable.

ADDRESSES: Comments should be sent to the Docket Clerk, Docket No. 49702, Department of Transportation, 400 7th Street S.W., Room 4107, Washington, DC 20590. To facilitate consideration of the comments, we ask commenters to file twelve copies of each comment. We encourage commenters who wish to do so also to submit comments to the Department through the Internet; our Internet address is dot—dockets@postmaster.dot.gov.[1] Note, however, that at this time the Department considers only the paper copies filed with the Docket Clerk to be the official comments. Comments will be available for inspection at this address from 9:00 a.m. to 5:00 p.m., Monday through Friday. Commenters who wish the Department to acknowledge the receipt of their comments should include a stamped, self-addressed postcard with their comments. The Docket Clerk will date-stamp the postcard and mail it back to the commenter.

FOR FURTHER INFORMATION CONTACT: Patricia N. Snyder, Office of International Law, Office of the General Counsel, U.S. Department of Transportation, 400 7th Street SW, Room 10105, Washington, DC 20590. (202) 366–9179. The Department of Transportation studies noted in this NPRM may be reviewed in the Department's technical library, 400 7th Street SW, Room 2200, Washington, DC 20590, between 9:00 a.m. and 4:00 p.m., Monday through Friday; phone (202) 366–0746.

SUPPLEMENTARY INFORMATION:

Background

Several sources of information on airline services widely used in the United States—most notably the Official Airline Guide and computer reservations systems " use a two-character airline designator code to identify the carrier operating a flight. Code-sharing is the term given to a common airline industry marketing practice where, by mutual agreement between cooperating carriers, at least one of the airline designator codes used on a flight is different from that of the airline operating the aircraft. In one version, two or more airlines each use their own designator codes on the same aircraft operation. Although only one airline operates the flight, each airline in a code-sharing arrangement may hold out, market and sell the flight as its own in published schedules.

The term "code-sharing" also refers to other arrangements where the code on a passenger's ticket is not that of the operator of the flight, but where the operator does not also hold out the service in its own name. Such code-sharing arrangements are common between commuter air carriers and their larger affiliates. Arrangements falling into this category are similar to leases of aircraft and crew (wet leases).

The Department regulates all international code-sharing arrangements as wet leases under 14 CFR Parts 207, 208, 212 and 218.

Although code-sharing and wet-lease arrangements can offer significant consumer benefits, they can also be misleading unless consumers know that the transportation they are buying will not be provided by the airline whose designator code is shown on the ticket and unless they know the identity of the airline on which they will be flying. The recent growth in use of code-sharing, wet-leasing and similar marketing tools, particularly in international air transportation, has given the Department concern about whether the current disclosure rules (described below) protect the public interest adequately. This notice proposes to strengthen the rules and requests public comment.

Benefits of Code-Sharing Services

In its examination of domestic airline interline practices, the Department noted that only 10% of passengers on certificated air carriers used interline services, indicating the strong preference of passengers on connecting flights for on-line service. Interline Practices in the Airline Industry at 24

[1] Our X.400 e-mail address is G=DOT/S=dockets/OU1=qmail/O=hq/p=gov+dot/a=attmail/c=us.

(January 1986). There may be even fewer today. Data for the quarter ended September 30, 1993, show that interline passengers account for approximately 2.3% of total passengers based on the Department's Passenger Origin and Destination Survey. Code-sharing arrangements, which enable airlines to hold out multi-carrier connections as on-line service, are, in part, a market response to this demand for on-line service. Often, code-sharing partners offer services similar to those available for on-line connections with the goal of offering "seamless" service (i.e., service where the transfers from flight to flight or airline to airline are facilitated). They may, for example, locate gates near each other to make connections more convenient, or coordinate baggage handling to give greater assurance that baggage will be properly handled.

In addition, airlines claim that code-sharing can help them operate more efficiently, because they can spread costs by providing a joint service with one aircraft rather than operating separate services with two aircraft. Particularly in thin markets, this efficiency can increase consumers' price and service options or enable the use of equipment sized appropriately for the market. Thus, overall, the Department believes that code-sharing can offer significant economic benefits.

Code-sharing services have expanded significantly since USAir (then Allegheny Airlines) set up the first code-sharing arrangements in the 1960s. A 1986 DOT study of the regional airline industry found that code-sharing agreements were a prominent feature of the nationwide air service network. A Study of the Regional Airline Industry at 80 (May 1986). The study also found that 16 of the 20 largest regional airlines operating in the continental U.S. participated in a code-sharing agreement with a major airline. Id. at 27. The Regional Airline Association's 1993 Annual Report reported that by 1992, the largest 29 regional carriers were code-sharing, 36 of the largest 50 regional airlines had code-sharing agreements, and 96% of regional airline passengers flew on code-sharing carriers.

Similarly, international code-shares, which have existed at least since the early 1980s, have expanded recently. Early international code-shares tended to involve individual routes; the more recent trend has been towards code-sharing agreements that involve total route systems, such as the one between Northwest and KLM. Today, most major U.S. airlines have code-sharing agreements with foreign airlines.

Benefits of Wet Leases

Some airlines perform some or all of their scheduled passenger air transportation services by contracting for the equipment and crew of another carrier (wet lease). Operating by wet lease can permit such carriers to offer services that might otherwise be unavailable. The flexibility to contract with other airlines for equipment and crew to fill operational needs benefits the public by avoiding disruptions and creating service alternatives that could not otherwise be provided.

DOT Regulatory Policy and Statutory Bases

Section 41712 of Title 49 of the U.S. Code (formerly § 411 of the Federal Aviation Act) authorizes the Department to decide if a U.S. or foreign air carrier or ticket agent (including travel agents) has engaged in unfair or deceptive practices and to ban such practices. Under that section, the Department has adopted various regulations and policies to prevent unfair or deceptive practices, such as the rules governing computer reservations systems (14 CFR Part 255) and the policy on fare advertising (14 CFR § 399.84).

Although code-sharing and wet-leasing can afford public benefits, they can also confuse and mislead the public unless prospective travelers are aware of the arrangements before they select a flight. Current DOT policy has dealt only with code-sharing, and has been to consider the practice to be unfair and deceptive and in violation of 49 U.S.C. § 41712 unless consumers are given reasonable and timely notice of the existence of the code-sharing arrangement. 14 C.F.R. 399.88 (Docket No. 42199, 50 FR 38508, September 23, 1985). The policy statement expressly applies only to U.S. air carriers, however. It states that the obligation to give "reasonable notice" requires air carriers, at a minimum to:

"(1) Identify, with an asterisk or other means, each flight in which the airline code is different from the code of the airline actually providing the service, in written or electronic schedule information;

(2) Provide information in any direct oral communication with a consumer concerning a code-sharing flight sufficient to alert the consumer that the flight will occur on an airline different from the airline whose code is shown on the ticket and identify the airline(s) actually providing the service; and

(3) provide frequent, periodic notice in advertising media of the existence of a code-sharing relationship and the identities of the airline(s) actually providing the service.

Thus, the current policy recognizes that, to be timely, notice must be given during all discussions about a code-shared flight. Consumers must be given clear notice before they make reservations or buy transportation both that the service they are considering is on a code-shared flight and of the actual operator's identity, so that they can consider these facts in making travel purchase decisions.

When adopted, the policy statement on code-sharing disclosure was not applied directly to ticket agents, since it was believed that ticket agents would communicate important information to travelers to retain them as clients. 49 FR 43709; October 31, 1984. Furthermore, section 41712 of title 49 of the U.S. Code prohibits unfair and deceptive practices by ticket agents, and Department rules also prohibit ticket agents from misrepresenting the kind or quality of service being sold. 14 CFR 399.80(c). In practice, the Department has not expressly required ticket agents to disclose code-sharing arrangements, although it would consider enforcement action against ticket agents who misrepresent code-sharing services as single-carrier services in response to specific inquiries.

Moreover, since there were few code-sharing arrangements between U.S. and foreign air carriers at the time of its adoption, the policy did not explicitly cover foreign air carriers. 14 CFR 399.88. To some extent, the Department has since moved to address this matter. Specifically, when the Department approves a code-sharing arrangement involving a foreign air carrier, it now explicitly requires the foreign air carrier to adhere to the requirements of 14 CFR 399.88 as a condition of its approval. See, *e.g.*, Order 94–5–35 (May 24, 1994).

Finally, although the earlier notification rule did not cover wet leases other than code-sharing arrangements as then defined, other wet leases appear to present similar opportunities to mislead consumers into thinking that they are buying transportation from one carrier, when in fact the transporting carrier will be different.

The Department continues to believe that the public interest is best served by permitting carriers to engage in code-sharing and wet-lease arrangements, so long as the public is given reasonable notice.[2] These arrangements can expand the price and service options available to consumers. Moreover, several of our international agreements specifically authorize code-sharing arrangements. We have determined, therefore, to limit this rulemaking to whether more notice

[2] For this reason, we deny the petition for rulemaking filed by Donald Pevsner in Docket 48710 to ban code-sharing entirely.

is necessary to assure adequate public disclosure. We will not expand it to entertain comments on other issues, such as whether code-sharing should be banned.

Inadequacy of the Current Rule

Experience with the increasing number of code-sharing arrangements in recent years, combined with consumers' receiving only haphazard disclosure, has tentatively persuaded us to modify our rules. A recent DOT enforcement investigation found that airlines and travel agents failed to disclose code-sharing arrangements 30% of the time. In the case of two particular airlines, failure to disclose was the norm. The Department has taken enforcement action against those companies, including the issuance of cease-and-desist orders, the assessment of civil penalties and the issuance of warning letters. However, enforcement action alone will not solve the overall problem.

Failure to disclose the relationship and the identity of the actual flight operator is deceptive and can result in confusion, hardship and inconvenience to consumers. It can also increase the costs of travel unexpectedly. For example, the Department receives complaints from consumers who mistakenly assumed that their carrier would use jet aircraft, rather than propeller-driven aircraft. Consumers enrolled in the frequent-flyer program of the airline whose code was on the ticket have found that they got no or fewer miles when they flew on the code-sharing partner's flights or that miles could be earned but not used on such flights or vice versa. Consumers have reported not knowing where to check in, a problem that can result in missed connections. Elderly or physically challenged passengers needing particular equipment have complained that the failure to disclose the code-sharing arrangement and the actual operator's identity has inconvenienced them. Travelers have only discovered at the airport that their flight was being operated by an airline they preferred not to use, a situation that can occur whenever a wet-lease arrangement is involved. Finally, consumers have complained that a service held out as on-line was in fact interline and there was no integration between the two airlines. These problems can also occur with certain wet leases. The Department believes that consumers can make travel decisions to avoid such problems if carriers and ticket agents notify them adequately.

Proposed Changes

First, the Department has tentatively concluded that no basis exists for differentiating among U.S. air carriers, ticket agents doing business in the United States, and foreign air carriers in the requirement to give full disclosure. Thus, we propose to expand the rule to cover the latter two classes explicitly. Ticket agents (including travel agents) sell about 80% of all airline tickets issued in the United States. Secretary's Task Force on Competition in the U.S. Domestic Airline Industry, Airline Marketing Practices: Travel Agencies, Frequent Flyer Programs, and Computer Reservations Systems at 7 (1990). A requirement that applies to only 20% of ticket sales affords the public too little protection. We therefore propose to require ticket agents doing business in the United States and foreign air carriers, when giving information about air transportation involving code-sharing arrangements, to disclose these arrangements and the identity of the transporting carrier, just as U.S. airlines are currently required to do. This should not be a burden to ticket agents since, to avoid misrepresentations, they are already required to tell consumers when asked that the carrier holding out the service is not the same as the one operating the flight. Ticket agents should also be able to identify code-shared flights easily, since computer reservations systems already identify them and airlines can update those systems to reflect changes very quickly. As noted above, extending the notice requirement to foreign air carriers merely conforms our rules to agency practice when we approve code-share applications. In this way, we hope to assure that all U.S. consumers have a complete understanding of the transportation they are buying at the time when they make a travel purchase decision.

Some domestic code-sharing arrangements consist of several commuter carriers that operate under a "network" name, e.g., Northwest Airlink, Delta Connection. In disclosing the transporting carrier for purposes of this rule, it is permissible to use such a network name if that is the name in which the service is generally held out to the public. Since the purpose of this rule is to prevent confusion, we do not wish to require disclosure of a corporate name that is not the name used by the carrier to identify itself in airports or in advertisements and will thus mean nothing to consumers. However, we remind airlines and ticket agents that the proposed rule requires disclosure not only of the name of the transporting carrier or network, but also of the fact that this entity is not the one shown on the ticket. Since many network names may connote a special type of service rather than a different carrier, the transporting airline should be identified with a statement such as "our affiliate, Northwest Airlink" or "our partner in travel, Delta Connection."

Second, we also propose to require U.S. and foreign air carriers and ticket agents (including travel agents) to provide written notice of the transporting carrier's identity in conjunction with the sale of any air transportation sold in the United States that involves a code-sharing arrangement or long-term wet lease. The proposed rule would therefore require that, if a separate itinerary is issued with the ticket, the itinerary contain a legend that states "Operated by" followed by the name of the transporting carrier in conjunction with the listing of any flight segment on which the designator code is not that of the transporting carrier. In the case of single-flight number service where a segment will be operated by a carrier other than the carrier in whose name the transportation was sold, the rule would require the carrier identity for that segment to be disclosed, e.g., "Service between XYZ City and ABC City will be operated by Jane Doe Airlines."

If no itinerary is issued, the proposal would require the selling carrier or ticket agent to provide a separate written notice that clearly identifies the transporting carrier for any flight segment on which the designator code is not that of the transporting carrier. The following notice would satisfy this requirement:

"IMPORTANT NOTICE: Service between XYZ City and ABC City will be operated by Jane Doe Airlines."

Many ticket agents and airlines already provide written information that specifies the carrier that will operate the service on behalf of the airline shown on the ticket. Thus, addition of this notice should not be unduly burdensome.

The Department intends that this written notice be given to any consumer buying, in the United States, air transportation involving any arrangement whereby one carrier uses the code of another except for short-term wet leases, as discussed below. The separate written notice requirement would apply whether or not the consumer is given an actual ticket to evidence the transportation, and it must be given or sent when he or she buys the transportation. Further, the Department tentatively concludes that it would not

be acceptable to make this written notice a standard part of tickets given to every consumer, because consumers would not be able to tell from a universal notice whether their particular flight was a code-shared operation.

However, the Department remains concerned that the appearance of one carrier's designator code on the face of the ticket, or flight coupon, when the service is in fact being provided by a different carrier may mislead some passengers. In particular, we are concerned that some passengers may rely on their flight coupons for information, notwithstanding the presence of an itinerary. We are seriously considering a requirement that, where the designator code on the ticket is not that of the transporting carrier on any flight segment, there must be printed on the flight coupon covering that segment (1) the asterisk that already identifies flights listed in the CRS under an airline code different from that of the transporting carrier; and (2) a legend elsewhere on the coupon that states the transporting carrier's identity preceded by the words "operated by." This information is already available in the CRSs, and the Department invites specific technical comments on the feasibility and costs of implementation or on alternative ways of providing the information on the ticket. Comments should be supported by concrete data and economic analysis and should contain sufficient detail to allow the Department to evaluate the position advocated. If the Department were to adopt such a requirement, it would be in addition to the separate written notice requirement.

The above oral and written notification requirements would apply to most situations in which the operating airline is different from the one in whose name the service is being held out, including code-sharing arrangements and long-term wet leases. The Department believes that, as a general rule, consumers are entitled to know both the identity of the company that will be transporting them and the one holding out the transportation.

However, the Department recognizes that periodically situations arisewhere full disclosure is impractical or would be extremely disruptive. For example, advance notification is impossible where an aircraft is rendered unusable and temporary substitute transportation is arranged at the last minute. For this reason, the Department proposes to apply the rule only to long-term wet leases. The proposed rule would use the same definition of long-term wet lease that appears in other parts of the Department's regulations, i.e., a lease of aircraft and crew that either lasts more than 60 days or is part of a series of such leases that amounts to a continuing arrangement lasting more than 60 days. The Department would nonetheless expect that, in the interest of maintaining good customer relations, an airline or ticket agent would make every effort to notify consumers of changes in the operator of a flight that take place after they have purchased their transportation.

Finally, the Department proposes to clarify the current obligation of code-sharing partners to include clear notice about the code-sharing arrangement in public advertisements. As written, the current policy statement merely directs the partners to advertise the fact of the arrangement and the identity of the actual operator periodically. To comply, carriers have routinely included general and often uninformative language in advertisements, whether or not they are advertising code-shared services. We tentatively conclude that this does not suffice. We consider that it would be more useful to the public if the partners were required to include both the nature of the operational arrangement and the identity of the transporting carrier only when they are advertising services in a city-pair market where the service is provided under a code-sharing arrangement or by long-term wet lease.

Because the Department believes that the rule conforms in many ways to prevailing practice, it believes that airlines and ticket agents can implement the proposed changes at little, if any, cost. We invite specific cost data to help us evaluate the cost to the industry of complying with the proposed requirements if any commenter believes the cost to be burdensome. In particular, the Department is interested in comments regarding its proposal to cover all types of long-term wet leases. Opponents of this aspect of the proposal should support their comments with economic or other data that would assist the Department in distinguishing among types of wet lease for the purpose of protecting consumers from unfair and deceptive practices.

As discussed above, the Department also requests that commenters address its concern that, despite the separate written notice that is being proposed, the current approach to printing flight coupons may mislead the consumer.

The Department recognizes that the airlines and ticket agents will require time to implement the proposed separate written notice requirement. The Department is proposing that the final rule be effective 60 days after publication, but it requests comments on other possible effective dates. In addition, we invite information about the time necessary to implement inclusion of the transporting carrier's identity on flight coupons if we should adopt a rule requiring this.

The Department also proposes to remove 14 CFR 399.88 of the Policy Statements, since the proposed rule would replace it.

Regulatory Analyses and Notices

The Department has determined that this action is not a significant regulatory action under Executive Order 12866 or under the Department's Regulatory Policies and Procedures. The Department has placed a regulatory evaluation that examines the estimated costs and impacts of the proposal in the docket.

The Department certifies that this rule, if adopted, would not have a significant economic impact on a substantial number of small entities. Although many ticket agents and some air carriers are small entities, the Department believes that the costs of notification will be minimal. The Department seeks comment on whether there are small entity impacts that should be considered. If comments provide information that there are significant small entity impacts, the Department will prepare a regulatory flexibility analysis at the final rule stage.

The Department does not believe that there would be sufficient federalism implications to warrant the preparation of a federalism assessment.

Paperwork Reduction Act

The proposed rule does not contain information collection requirements that require approval by the Office of Management and Budget under the Paperwork Reduction Act (44 U.S.C. 2507 et seq.).

List of Subjects

14 CFR Part 257

Air carriers, Foreign air carriers, and Consumer protection.

14 CFR Part 399

Administrative practice and procedure, Air carriers, Air rates and fares, Air taxis, Consumer protection, and Small business.

For the reasons set forth in the preamble, the Department of Transportation denies the petition for rulemaking in Docket 48710 and proposes to add part 257 and to amend part 399 as follows:

1. Part 257 is added to read as follows.

PART 257—DISCLOSURE OF CODE-SHARING ARRANGEMENTS AND LONG-TERM WET LEASES

Sec.
257.1 Purpose.
257.2 Applicability.
257.3 Definitions.
257.4 Unfair and Deceptive Practice.
257.5 Notice Requirement.

Authority: Sections 204 and 411, Pub. L. 85–726, as amended, 72 Stat. 743 and 769; 49 U.S.C. §§ 40113(a) and 41712.

§ 257.1 Purpose.

The purpose of this part is to ensure that ticket agents doing business in the United States, air carriers, and foreign air carriers tell consumers clearly when the air transportation they are buying or considering buying involves a code-sharing arrangement or a long-term wet lease, and that they disclose to consumers the transporting carrier's identity.

§ 257.2 Applicability.

This rule applies to:

(a) Direct air carriers and foreign air carriers that participate in code-sharing arrangements or long-term wet leases involving scheduled passenger air transportation; and

(b) Ticket agents doing business in the United States that sell scheduled passenger air transportation services involving code-sharing arrangements or long-term wet leases.

§ 257.3 Definitions

As used in this part:

(a) Carrier means any air carrier or foreign air carrier as defined in 49 U.S.C. § 40102(2) or 49 U.S.C. § 40102(21), respectively, that is engaged directly in scheduled passenger air transportation, including by wet lease.

(b) Code-sharing arrangement means an arrangement whereby a carrier's designator code is placed on a flight operated by another carrier.

(c) Designator code means the airline designations originally allotted and administered pursuant to Agreements CAB 24606 and 26056.

(d) Ticket agent has the meaning ascribed to it in 49 U.S.C. § 40102(40).

(e) Transporting carrier means the carrier that is operating the aircraft in a code-sharing arrangement or long-term wet lease.

(f) Long-term wet lease means a lease by which the lessor provides both an aircraft and crew, which either (a) lasts more than 60 days, or (b) is part of a series of such leases that amounts to a continuing arrangement lasting more than 60 days.

§ 257.4 Unfair and deceptive practice.

The holding out and sale of scheduled passenger air transportation involving a code-sharing arrangement or long-term wet lease is prohibited as unfair and deceptive in violation of 49 U.S.C. § 41712 unless, in conjunction with such holding out or sale, carriers and ticket agents follow the requirements of this part.

§ 257.5 Notice requirement.

(a) *Notice in schedules.* In written or electronic schedule information provided by carriers to the public, the Official Airline Guide and comparable publications, and, where applicable, computer reservations systems, carriers involved in code-sharing arrangements or long-term wet leases shall ensure that an asterisk or other easily recognizable mark identifies each flight in scheduled passenger air transportation on which the designator code is not that of the transporting carrier.

(b) *Oral notice to prospective consumers.* In any direct oral communication with a prospective consumer concerning a flight that is part of a code-sharing arrangement or long-term wet lease, a ticket agent doing business in the United States or a carrier shall tell the consumer, before booking transportation, that the transporting carrier is not the carrier whose designator code will appear on the ticket and shall identify the transporting carrier.

(c) *Written notice.* At the time of sale, each selling carrier or ticket agent shall provide each consumer of scheduled passenger air transportation sold in the United States that involves a code-sharing arrangement or long-term wet lease with the following notice:

(1) If an itinerary is issued, there shall appear in conjunction with the listing of any flight segment on which the designator code is not that of the transporting carrier a legend that states "Operated by" followed by the name of the transporting carrier. In the case of single-flight number service involving a segment or segments on which the designator code is not that of the transporting carrier, the notice shall clearly identify the segment or segments and the transporting carrier. The following form of statement will satisfy the requirement of the preceding sentence:

IMPORTANT NOTICE: Service between XYZ City and ABC City will be operated by Jane Doe Airlines; or

(2) If no itinerary is issued, the selling carrier or ticket agent shall provide a separate written notice that identifies clearly the transporting carrier for any flight segment on which the designator code is not that of the transporting carrier. The following form of notice will satisfy the requirement of this subparagraph:

IMPORTANT NOTICE: Service between XYZ City and ABC City will be operated by Jane Doe Airlines.

(d) *Advertising.* In any advertisement for service in a city-pair market that is provided under a code-sharing arrangement or by long-term wet lease, the advertising carrier or ticket agent shall clearly indicate the nature of the service and shall identify the transporting carrier[s].

2. The authority citation for part 399 is revised to read as follows:

Authority: 49 U.S.C. 40101, 40102, 40105 40109, 40113, 40114, 40115, 41010, 41011 41012, 41101, 41102, 41104, 41105, 41106 41107, 41108, 41109, 41110, 41111, 41112, 41301, 41302, 41303, 41304, 31305, 41306, 41307, 41308, 41309, 41310, 41501, 41503, 41504, 41506, 41507, 41508, 41509, 41510, 41511, 41701, 41702, 41705, 41706, 41707, 41708, 41709, 41711, 41713, 41712, 41901 41902, 41903, 41904, 41905, 41906, 41907, 41908, 41909, 42111, 42112, 44909, 46101 and 46102, unless otherwise noted.

§ 399.88 [Removed]

3. Section 399.88 is removed.

Issued under authority delegated in 49 C.F.R. § 1.56a(h)(2) in Washington, D.C. on August 4, 1994.

Patrick V. Murphy,

Acting Assistant Secretary for Aviation and International Affairs.

[FR Doc. 94–19441 Filed 8–5–94; 1:40 pm]

BILLING CODE 4910–62–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[MI26–01–6294A; FRL–5029–1]

Approval and Promulgation of Implementation Plan; Michigan

AGENCY: United States Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The United States Environmental Protection Agency proposes to grant an exemption from the oxides of nitrogen (NO_x) requirements to the State of Michigan. These requirements include adopting and implementing regulations addressing general conformity, transportation conformity, inspection and maintenance, reasonably available control technology, and new source review. In the Final Rules Section of this **Federal Register**, EPA is granting

the State's exemption request, as a direct final rule without prior proposal because the Agency views this as a noncontroversial revision amendment and anticipates no adverse comments. A detailed rationale for the approval is set forth in the direct final rule. If no adverse comments are received in response to this proposed rule, no further activity is contemplated and the direct final rule will become effective. If EPA receives adverse comments, the direct final rule will be withdrawn and all public comments received will be addressed in a subsequent final rule based on this proposed rule. The EPA will not institute a second comment period on this notice. Any parties interested in commenting on this notice should do so at this time.

DATES: Comments on this proposed action must be received by August 25, 1994.

ADDRESSES: Written comments should be sent to: Carlton T. Nash, Chief, Regulation Development Section, Air Toxics and Radiation Branch (AT–18J), EPA, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604–3590.

FOR FURTHER INFORMATION CONTACT: Douglas Aburano, Air Toxics and Radiation Branch (AT–18J), EPA, Region 5, Chicago, Illinois 60604, (312) 353–6960.

SUPPLEMENTARY INFORMATION: For additional information, see the Direct Final notice which is located in the Rules Section of this **Federal Register** Copies of the request and the EPA's analysis are available for inspection at the following address: (It is recommended that you telephone Douglas Aburano at (312) 353–6960 before visiting the Region 5 office.) EPA, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604–3590.

Authority: 42 U.S.C. 7401–7671q.

Dated: July 19, 1994.

Valdas V. Adamkus,

Regional Administrator.

[FR Doc. 94–19451 Filed 8–9–94; 8:45 am]

BILLING CODE 6560–50–M

FEDERAL EMERGENCY MANAGEMENT AGENCY

44 CFR Part 67

[Docket No. FEMA–7105]

Proposed Flood Elevation Determinations

AGENCY: Federal Emergency Management Agency, FEMA.

ACTION: Proposed rule.

SUMMARY: Technical information or comments are requested on the proposed base (100-year) flood elevations and proposed base flood elevation modifications for the communities listed below. The base (100-year) flood elevations are the basis for the floodplain management measures that the community is required either to adopt or to show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: The comment period is ninety (90) days following the second publication of this proposed rule in a newspaper of local circulation in each community.

ADDRESSES: The proposed base flood elevations for each community are available for inspection at the office of the Chief Executive Officer of each community. The respective addresses are listed in the following table.

FOR FURTHER INFORMATION CONTACT: Michael K. Buckley, P.E., Chief, Hazard Identification Branch, Mitigation Directorate, 500 C Street, SW., Washington, DC 20472, (202) 646–2756.

SUPPLEMENTARY INFORMATION: The Federal Emergency Management Agency (FEMA or Agency) proposes to make determinations of base (100-year) flood elevations and modified base flood elevations for each community listed below, in accordance with section 110 of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and 44 CFR 67.4(a).

These proposed base flood and modified base flood elevations, together with the floodplain management criteria required by 44 CFR 60.3, are the minimum that are required. They should not be construed to mean that the community must change any existing ordinances that are more stringent in their floodplain management requirements. The community may at any time enact stricter requirements of its own, or pursuant to policies established by other Federal, state or regional entities. These proposed elevations are used to meet the floodplain management requirements of the NFIP and are also used to calculate the appropriate flood insurance premium rates for new buildings built after these elevations are made final, and for the contents in these buildings.

National Environmental Policy Act. This proposed rule is categorically excluded from the requirements of 44 CFR Part 10, Environmental Consideration. No environmental impact assessment has been prepared.

Regulatory Flexibility Act. The Associate Director, Mitigation Directorate, certifies that this proposed rule is exempt from the requirements of the Regulatory Flexibility Act because proposed or modified base flood elevations are required by the Flood Disaster Protection Act of 1973, 42 U.S.C. 4104, and are required to establish and maintain community eligibility in the National Flood Insurance Program. As a result, a regulatory flexibility analysis has not been prepared.

Regulatory Classification. This proposed rule is not a significant regulatory action under the criteria of section 3(f) of Executive Order 12866 of September 30, 1993, Regulatory Planning and Review, 58 FR 51735.

Executive Order 12612, Federalism. This proposed rule involves no policies that have federalism implications under Executive Order 12612, Federalism, dated October 26, 1987.

Executive Order 12778, Civil Justice Reform. This proposed rule meets the applicable standards of section 2(b)(2) of Executive Order 12778.

List of Subjects in 44 CFR Part 67

Administrative practice and procedure, Flood insurance, Reporting and recordkeeping requirements.

Accordingly, 44 CFR part 67 is proposed to be amended as follows:

PART 67—[AMENDED]

1. The authority citation for part 67 continues to read as follows:

Authority: 42 U.S.C. 4001 et seq.; Reorganization Plan No. 3 of 1978, 3 CFR, 1978 Comp., p. 329; E.O. 12127, 44 FR 19367, 3 CFR, 1979 Comp., p. 376.

2. The tables published under the authority of § 67.4 are proposed to be amended as follows:

Source of flooding and location	#Depth in feet above ground. *Elevation in feet (NGVD)
Ohio	
Metamora (village), Fulton County	
Tenmile Creek:	
Approximately 0.5 mile downstream of Garnsey Street	*715
Approximately 125 feet upstream of Swanton Street	*720
Maps available for inspection at the Metamora Village Municipal Building, 114 East Main Street, Metamora, Ohio.	

Source of flooding and location	#Depth in feet above ground. *Elevation in feet (NGVD)
Send comments to The Honorable Virginia DeLauter, Mayor of the Village of Metamora, P.O. Box 299, Metamora, Ohio 43540.	
Richwood (village), Union County	
Ash Run:	
At confluence with Fulton Creek	*941
At Race Road	*943
Fulton Creek:	
At confluence of Ash Run	*941
Approximately 1,050 feet upstream of confluence of Ash Run	*941
Maps available for inspection at the Village Hall, 101 South Franklin Street, Richwood, Ohio.	
Send comments to The Honorable Jeff Holtschulte, Mayor of the Village of Richwood, Union County, 101 South Franklin Street, Richwood, Ohio 43344.	

§ 67.4 [Amended]

3. The tables published under the authority of § 67.4 are proposed to be amended as follows:

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
Alabama	Bessemer (city) Jefferson County.	Valley Creek	Approximately 165 feet upstream of 15th Avenue bridge.	*458	*459
			Approximately 0.38 mile upstream of U.S. Route 11.	*484	*487
		Shades Creek	Approximately 75 feet upstream of Dickey Springs Road.	*497	*498
			Approximately 0.7 mile upstream of Morgan Road.	*514	*515
		Unnamed Creek 41	Approximately 1,675 feet upstream of 18th Avenue.	*470	*473
			Approximately 0.38 mile upstream of 18th Avenue.	*472	*473
		Fivemile Creek (Valley Creek Basin).	(Backwater on an Unnamed Tributary) Approximately 800 feet upstream of Old U.S. Route 11.	*478	*482
Maps available for inspection at the City Hall/Engineering Department, 1800 3rd Avenue North, Bessemer, Alabama.					
Send comments to The Honorable Quitman Mitchell, Mayor of the City of Bessemer, City Hall, Jefferson County, 1800 3rd Avenue North, Bessemer, Alabama 35020–4999.					
Alabama	Birmingham (city) Jefferson County.	Pinchgut Creek	Approximately 0.67 mile upstream of Chalkville Road.	*702	*696
			Approximately 1,225 feet upstream of Industrial Road.	*732	*734
		Dry Creek (Fivemile Creek Basin).	At the confluence with Fivemile Creek	*721	*720
			Approximately 130 feet downstream of Westridge Road.	*793	*791
		Fivemile Creek	Approximately 0.4 mile downstream of Mineral Springs Republic Road.	None	*392
			Approximately 0.4 mile upstream of confluence of Dry Creek (Fivemile Creek Basin).	*731	*730
		Tarrant Springs Branch	At the confluence of Fivemile Creek	*591	*592
			Approximately 400 feet downstream of Carson Road.	*708	*707
		Valley Creek	Approximately 750 feet upstream of U.S. Route 11.	*484	*486
			Approximately 1,200 feet upstream of 4th Avenue.	*571	*566
		Shades Creek	Approximately 1,750 feet downstream of Shannon Landfill Road.	*598	*600
			Approximately 0.88 mile upstream of Norris Dump Road.	*746	*745
		Unnamed Creek 10	Approximately 700 feet downstream of Houston Road.	None	*672
			Approximately 500 feet upstream of Houston Road.	None	*659

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
		Black Creek (Fivemile Creek Basin).	At confluence with Fivemile Creek	*431	427
			Approximately 265 feet downstream of Walker Chapel Road.	*431	*430
		Cotton Mill Branch	At downstream downside of Southern Railway.	*581	*582
			Approximately 350 feet upstream of First Avenue.	None	*603
		Unnamed Creek 23	Just upstream of Lawson Road At Robin Wood Road.	None	*637
		Nabors Branch	At confluence with Valley Creek	*520	*519
			Approximately 50 feet downstream of Southern Railway.	*521	*522

Maps available for inspection at the City Hall, Planning and Engineering Office, 710 North 20th Street, 5th Floor, Birmingham, Alabama.

Send comments to The Honorable Richard Arrington, Jr., Mayor of the City of Birmingham, Jefferson County, City Hall, 710 North 20th Street, Birmingham, Alabama 35203.

Alabama	Brighton (city) Jefferson County.	Valley Creek	Approximately 750 feet upstream of U.S. Route 11.	*484	*486
			Approximately 50 feet downstream of Jaybird Road.	*474	*477

Maps available for inspection at the City Hall, 3700 Main Street, Brighton, Alabama.

Send comments to The Honorable Hugh Colston, Mayor of the City of Brighton, City Hall, Jefferson County, 3700 Main Street, Brighton, Alabama 35020.

Alabama	Brookside (town) Jefferson County.	Fivemile Creek	At downstream corporate limit	*371	*366
			At upstream corporate limit	*385	*380
		Newfound Creek	From its confluence with Fivemile Creek	*374	*367
			At upstream corporate limit	*374	*367

Maps available for inspection at the Town Hall, 107 Market Street, Brookside, Alabama.

Send comments to The Honorable Roger McCondichie, Mayor of the Town of Brookside, Town Hall, Jefferson County, P.O. Box 142, Brookside, Alabama 35036.

Alabama	Cardiff (town) Jefferson County.	Fivemile Creek	Approximately 500 feet downstream of Cardiff Road.	*370	*364
			Approximately 1,000 feet upstream of Cardiff Road.	*370	*364

Maps available for inspection at the Town Hall, Main Street, Cardiff, Alabama.

Send comments to The Honorable Joseph Country, Mayor of the Town of Cardiff, Town Hall, Jefferson County, P.O. Box 38, Cardiff, Alabama 35041.

Alabama	Fultondale (city) Jefferson County.	Fivemile Creek	At downstream corporate limit	*498	*492
			At upstream corporate limit	*523	*514

Maps available for inspection at the City Hall, 1005 Walker Chapel Road, Fultondale, Alabama.

Send comments to The Honorable John N. McCain, Mayor of the City of Fultondale, City Hall, Jefferson County, P.O. Box 699, Fultondale, Alabama 35068.

Alabama	Graysville (city) Jefferson County.	Fivemile Creek	At downstream corporate limits	None	*323
			At upstream corporate limits	None	*327
		Unnamed Creek 13	At corporate limits	None	*378

Maps available for inspection at the City Hall, 246 South Main Street, Graysville, Alabama.

Send comments to The Honorable Wayne Tuggle, Mayor of the City of Graysville, City Hall, Jefferson County, 246 South Main Street, Graysville, Alabama 35073.

Alabama	Homewood (city) Jefferson County.	Shades Creek	Approximately 0.48 mile upstream of Oxmoor Road.	*622	*625
			Approximately 1,056 feet downstream of U.S. Route 280.	*651	*650

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
Maps available for inspection at the Homewood Zoning Department, 1721 Oxmoor Road, Room B10, Homewood, Alabama. Send comments to The Honorable James K. Atkinson, Mayor of the City of Homewood, City Hall, Jefferson County, 1903 29th Avenue South, Homewood, Alabama 35209.					
Alabama	Hoover (city) Jefferson County.	Patton Creek	Approximately 500 feet upstream of Hurricane Branch.	*425	*424
			Approximately 600 feet upstream of Southland Drive.	*514	*513
		Little Shades Creek	Approximately 0.52 mile upstream of confluence with Lahaba River.	*433	*431
			Approximately 500 feet upstream of Lock Haven Road.	*433	*431
		Hurricane Branch	At Al Seier Road	None	*447
			Approximately 500 feet downstream of Private Road.	None	*510
Maps available for inspection at the City Hall, 100 Municipal Drive, Hoover, Alabama. Send comments to The Honorable Frank S. Skinner, Jr., Mayor of the City of Hoover, City Hall, Jefferson County, 100 Municipal Drive, Hoover, Alabama 35216.					
Alabama	Hueytown (city) Jefferson County.	Valley Creek	Approximately 1,100 feet upstream of the confluence of Hall Creek.	*456	*455
			Approximately 0.6 mile upstream of 19th Street.	*463	*464
Maps available for inspection at the City Hall Annex, 1320 Hueytown Road, Hueytown, Alabama. Send comments to The Honorable Lillian P. Howard, Mayor of the City of Hueytown, City Hall, Jefferson County, P.O. Box C, Hueytown, Alabama 35023.					
Alabama	Irondale (city) Jefferson County.	Shades Creek	Approximately 0.64 mile upstream of Grove Drive.	*691	*690
			Approximately 1,600 feet downstream of Norris Dump Road.	*724	*725
Maps available for inspection at the City Hall/City Clerk's Office, 101 South 20th Street, Irondale, Alabama. Send comments to The Honorable David Knder, Mayor of the City of Irondale, City Hall, Jefferson County, P.O. Box 100188, Irondale, Alabama 35210.					
Alabama	Jefferson County (unincorporated areas).	Turkey Creek	Approximately 0.67 mile downstream of Old Bradford Road.	*562	*565
			Approximately 325 feet upstream of Springville Road.	None	*880
		Unnamed Creek 9	At the confluence with Turkey Creek	*594	*587
			At upstream side of Pinson Heights Road	None	*633
		Unnamed Creek 10	At the confluence with Unnamed Creek 9	*599	*597
			Approximately 150 feet upstream of Saturn Lane.	*657	*656
		Unnamed Creek 11	At the confluence with Unnamed Creek 10.	*617	*616
			Approximately 130 feet upstream of Wood Drive Circle.	None	*693
		Valley Creek	Approximately 0.84 mile upstream of County Route 54.	*328	*329
			Approximately 0.3 mile upstream of Fairfield Street.	*508	*511
		Barton Branch	Just upstream of State Highway 79	*575	*574
			Approximately 75 feet upstream of Goodrich Drive.	None	*627
		Tarrant Springs Branch	Approximately 675 feet downstream of Carson Road.	*642	*639
			Approximately 1,050 feet upstream of Martin Spring Road.	*705	*704
		Dry Creek (Fivemile Creek Basin).	Approximately 550 feet upstream of confluence with Fivemile Creek.	*724	*725
			At Chalkville Road	None	*958
		Huckleberry Branch	Approximately 825 feet upstream of Tyler Road.	None	*531
			Approximately 0.27 mile upstream of Mountain Oaks Drive.	None	824

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
		Patton Creek	Approximately 0.76 mile downstream of Patton Chapel Road.	*425	*424
			Approximately 875 feet downstream of Creek View Drive.	*502	*501
		Pinchgut Creek	Approximately 845 feet downstream of Chalkville Road.	*692	*691
			Approximately 1.44 miles upstream of Morris Spring Lane.	None	*851
		Hurricane Branch	Approximately 1,300 feet upstream of confluence with Patton Creek.	*424	*425
			Approximately 1.01 miles upstream of Al Seier Road.	None	*536
		Little Shades Creek	Approximately 475 feet downstream of Lochhaven Road.	*432	*431
			Approximately 200 feet upstream of Cahaba Heights Road.	None	*623
		Shades Creek	Approximately 0.4 mile downstream of confluence of Black Creek.	*392	*393
			Approximately 0.88 mile upstream of Norris Dump Road.	*746	*745
		Fivemile Creek	Approximately 1.4 miles upstream of the confluence with Locust Creek.	*300	*294
			Approximately 70 feet upstream of Private Drive.	None	*842
		Newfound Creek	At downstream corporate limit of Town of Brookside.	*374	367
			Approximately 1.5 miles downstream of Louisville and Nashville Railroad.	*374	*373
		Halls Creek	At confluence with Valley Creek	*453	*455
			Approximately 370 feet upstream of Interstate Routes 20 and 59*456 *455.		
		Unnamed Creek 38	At confluence with Halls Creek	*456	*455
			Approximately 750 feet upstream of confluence with Halls Creek.	*456	*455
		Opossum Creek	At confluence with Valley Creek	*467	*469
			Approximately 1,450 feet upstream of confluence with Valley Creek.	*468	*469
		Unnamed Creek 45	At confluence with Valley Creek	*499	*504
			Approximately 634 feet upstream of confluence with Valley Creek.	*503	*504
		Unnamed Creek 41	At confluence with Valley Creek	*466	*465
			Approximately 0.38 mile upstream of 18th Avenue.	*472	*473

Maps available for inspection at the Jefferson County Courthouse/Land Development/201 B Courthouse, 716 North 21st Street, Birmingham, Alabama.

Send comments to Ms. Mary Buckelew, President of the Jefferson County Commission, Jefferson County, Room 211, 716 North 21st Street, Birmingham, Alabama 35263.

Alabama	Kimberly (town) Jefferson County.	Locust Fork	Approximately 800 feet upstream of I–65	None	*352
			Approximately 0.4 mile downstream of I–65.	None	*351
		Turkey Creek	At downstream corporate limits	None	*350
			At upstream corporate limits	None	*350

Maps available for inspection at the Town Hall, 9256 Stouts Road, Kimberly, Alabama.

Send comments to The Honorable Sam Maze, Mayor of the Town of Kimberly, Town Hall, Jefferson County, P.O. Box 206, Kimberly, Alabama 35091.

Alabama	Lipscomb (city) Jefferson County.	Unnamed Creek 43	Approximately 50 feet upstream of U.S. Route 11.	*479	*484
			Approximately 1,750 feet upstream of U.S. Route 11.	None	*484

Maps available for inspection at the City Hall, 5512 Avenue H, Lipscomb, Alabama.

Send comments to The Honorable Henry G. McDaniel, Mayor of the City of Lipscomb, City Hall, Jefferson County, 5512 Avenue H, Lipscomb, Alabama 35020.

Alabama	Midfield (city) Jefferson County.	Valley Creek	Approximately 275 feet downstream of New Wilkes Road.	*494	*497

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Approximately 1,850 feet upstream of Fairfield Street.	*508	*511
		Unnamed Creek 46	At confluence with Valley Creek	*503	*506
			Approximately 580 feet upstream of Collier Drive.	*505	*506
		Unnamed Creek 45	At confluence with Valley Creek	*499	*504
			Approximately 634 feet upstream of confluence with Valley Creek.	*503	*504

Maps available for inspection at the City Hall, 725 Bessemer Super Highway, Midfield, Alabama.

Send comments to The Honorable James R. Martin, Mayor of the City of Midfield, City Hall, Jefferson County, 725 Bessemer Super Highway, Midfield, Alabama 35228.

Alabama	Morris (town) Jefferson County.	Turkey Run	Approximately 0.8 mile upstream of Sardis Road.	None	*361
			At Old U.S. Route 31	None	*373

Maps available for inspection at the Town Hall, 8304 Stouts Road, Morris, Alabama.

Send comments to The Honorable James S. Roberts, Jr., Mayor of the Town of Morris, Town Hall, Jefferson County, P.O. Box 163, Morris, Alabama 35116.

Alabama	Mountain Brook (city) Jefferson County.	Little Shades Creek (Cahaba Basin).	Approximately 1,000 feet downstream of Caldwell Mill Road.	*574	*576
			Approximately 150 feet upstream of U.S. Highway 280.	*605	*598
		Shades Creek	Approximately 422 feet upstream of Windsor Drive.	*651	*650
			Approximately 0.55 mile upstream of Grover Drive.	*691	*690

Maps available for inspection at the City Hall, 56 Church Street, Mountain Brook, Alabama.

Send comments to Mr. Sam Gaston, Mountain Brook City Manager, City Hall, Jefferson County, P.O. Box 130009, Mountain Brook, Alabama 35213.

Alabama	Tarrant City (City) Jefferson County.	Fivemile Creek	Just upstream of Louisville and Nashville Railroad.	*530	*520
			Approximately 350 feet upstream of the confluence of Barton Branch.	*570	*568
		Barton Branch	At confluence with Fivemile Creek	*565	*567
			Approximately 200 feet downstream of 6th Avenue.	*582	*581

Maps available for inspection at the City Hall, 1604 Pinson Valley Parkway, Tarrant, Alabama.

Send comments to The Honorable Charles R. Hartsell, Mayor of the City of Tarrant City, City Hall, Jefferson County, P.O. Box 170220, Tarrant, Alabama 35217.

Alabama	Trussville (city) Jefferson County.	Pinchgut Creek	Approximately 800 feet downstream of Southern Railroad.	*692	*691
			Approximately 0.44 mile upstream of Chalkville Road.	*698	*694

Maps available for inspection at the City Hall, 131 Main Street, Trussville, Alabama.

Send comments to The Honorable Charles I. Grover, Mayor of the City of Trussville, City Hall, Jefferson County, P.O. Box 159, Trussville, Alabama 35173.

Alabama	Tuscaloosa (city), Tuscaloosa County.	Cribbs Mill Creek	Approximately 1,800 feet downstream of Southern Railway.	*144	*145
			Approximately 475 feet upstream of the Second Avenue Bridge.	*190	*191
		Cribbs Mill Creek Tributary No. 1.	At its confluence with Cribbs Mill Creek	*178	*180
			Approximately 330 feet downstream of Hargrove Road.	*184	*185
		Cribbs Mill Creek Tributary No. 5.	At its confluence with Cribbs Mill Creek	*174	*175
			Approximately 700 feet upstream of confluence with Cribbs Mill Creek.	*179	*180
		Cypress Creek	300 feet upstream of U.S. Highway 82	*213	*214
			Approximately 1,300 feet upstream of 18th Avenue East.	*241	*242

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Approximately 25 feet downstream of Spring Lake Dam.	*299	*298
		Cypress Creek Tributary No. 1.	Backwater from Cypress Creek along Interlake Road.	*285	*275

Maps available for inspection at the City Hall/Community Planning & Development, 2201 University Boulevard, Tuscaloosa, Alabama.

Send comments to The Honorable Alvin P. DuPont, Mayor of the City of Tuscaloosa, City Hall, Tuscaloosa County, P.O. Box 2089, Tuscaloosa, Alabama 35403.

Alabama	Vestavia Hills (city) Jefferson County.	Patton Creek	Approximately 100 feet upstream of Creek View Drive.	*510	509
			Just downstream of Westridge Drive	*531	*533
		Little Shades Creek (Cahaba River Basin).	Approximately 450 feet downstream of Gonnedo Road.	*444	*445
			Approximately 0.46 mile upstream of Rocky Ridge Road.	*528	*531
		Huckleberry Branch	At confluence with Patton Creek	*515	*513
			Approximately 0.4 mile upstream of Hackenberry Lane.	None	*636

Maps available for inspection at the City Hall/City Clerk's Office, 513 Montgomery Highway, Vestavia Hills, Alabama.

Send comments to The Honorable C. Pat Reynolds, Mayor of the City of Vestavia Hills, City Hall, Jefferson County, 513 Montgomery Highway, Vestavia Hills, Alabama 35216.

Connecticut	Prospect (town), New Haven County.	Unnamed Brook	Approximately 250 feet downstream of Salem Road (downstream crossing).	None	*751
			Approximately 80 feet upstream of Salem Road (upstream crossing).	None	*765
		Mountain Brook	Approximately 80 feet downstream of Juggernaut Road.	None	*588
			Approximately 0.9 mile upstream of Juggernaut Road.	None	*613
		Tenmile River	Approximately 900 feet downstream of abandoned overpass.	None	*237
			Approximately 120 feet upstream of Cheshire Road.	None	*263

Maps available for inspection at the Town Hall, 36 Center Street, Prospect, Connecticut.

Send comments to The Honorable Robert J. Chatfield, Mayor of the Town of Prospect, Town Hall, New Haven County, 36 Center Street, Prospect, Connecticut 06712–1699.

Georgia	North High Shoals (town) Oconee County.	Apalachee River	At downstream corporate limits, approximately 0.9 mile downstream of State Highway 186 bridge.	None	*585
			At upstream corporate limits, approximately 1.5 miles upstream of State Highway 186 bridge.	None	*652

Maps available for inspection at the Town Hall, 108 Jefferson, High Shoals, Georgia.

Send comments to The Honorable Jeff Thomas, Mayor of the Town of North High Shoals, P.O. Box 157, High Shoals, Georgia 30645.

Indiana	Shoals (town) Martin County.	East Fork White River	Approximately 1.2 miles downstream of the confluence of Beaver Creek.	None	*478
			Upstream corporate limits	None	*481
		Beaver Creek	At the downstream corporate limits	None	*480
			At the upstream corporate limits	None	*480

Maps available for inspection at the Town Hall, Water Street, Shoals, Indiana.

Send comments to Mr. William S. Hardwich, Town of Shoals Council President, P.O. Box 1078, Shoals, Indiana 47581.

Florida	Altamonte Springs (city) Seminole County.	Lake Harriet	Entire shoreline within community	None	*57
		Tributary to Howell Lake	Upstream corporate limits	None	*76
			At downstream side of State Route 436	None	*57

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
Maps available for inspection at the Altamonte Springs Public Library, 281 North Maitland, Altamonte Springs, Florida.					
Send comments to Mr. Phillip D. Penland, Altamonte Springs City Manager, Seminole County, 225 Newburyport Avenue, Altamonte Springs, Florida 32701.					
Kentucky	Daviess County (unincorporated areas).	Ohio River	At downstream county boundary	*383	*384
			Approximately 1 mile upstream of upstream corporate limits.	*394	*395
		Panther Creek	At confluence with Green River	*384	*386
			At confluence of North and South Forks Panther Creeks.	*391	*392
		Pup Creek	At the confluence with the Ohio River	*390	*391
			At downstream side of State Route 405	*390	*391
		Persimmon Ditch Tributary	At confluence with Persimmon Ditch	*402	*403
			Approximately 900 feet upstream of confluence with Persimmon Ditch.	#2	*403
		Persimmon Ditch	Approximately 0.3 mile upstream of Ewing Road.	*393	*399
			Downstream side of U.S. Route 60	*402	*403
		Devins Ditch	Approximately 500 feet upstream of Wayside Drive.	*394	*391
			Approximately 1,600 feet upstream of Audubon Parkway west entrance ramp.	*398	*401
		Big Ditch	At confluence with Panther Creek	*390	*392
			At confluence of Carter Ditch	*396	*395
		Carter Ditch	At confluence with Big Ditch	*396	*395
			At U.S. Route 60 Bypass	*398	*397
		Scherm Ditch	At confluence with Carter Ditch	*397	*396
			Approximately 1,500 feet upstream of U.S. Route 60 Bypass.	#2	*398
		Tamarack Ditch	At confluence with Big Ditch	*396	*395
			At storm sewer outlet	*397	*395
		Goetz Ditch	At confluence with Panther Creek	*390	*392
			Upstream side of U.S. Route 60 Bypass	#2	*396
		Harsh Ditch	Approximately 110 feet upstream of confluence with Horse Fork.	*392	*393
			Downstream side of 27th Street	*399	*398
		West Tributary of Harsh Ditch.	At confluence with Harsh Ditch	*394	*395
			Downstream side of Abandoned Railroad (outlet of storm drain).	*394	*396
		Horse Fork	At confluence with Panther Creek	*391	*392
			Approximately 0.2 mile upstream Fairview Road.	None	*418
		Unnamed Tributary 46 Horse Fork.	At confluence with Horse Fork	None	*412
			Approximately 0.5 mile upstream of confluence with Horse Fork.	None	*415
		Yellow Creek	At confluence with Ohio River	*390	*391
			Approximately 317 feet upstream of Daniels Lane.	None	*403
		Gilles Ditch	Upstream side of Lyddane Bridge Road	*386	*387
			Approximately 0.3 mile upstream of U.S. Route 60.	None	*413
		North Fork Panther Creek	At the confluence with Panther Creek	*391	*392
			Downstream side of State Route 298	*391	392
Maps available for inspection at the Daviess County Engineering Office, Kentucky Highway 54, Owensboro, Kentucky.					
Send comments to The Honorable W. M. Norris, Jr., County Judge Executive, Daviess County, 212 St. Ann Street, Owensboro, Kentucky 42303.					
Kentucky	Owensboro (city) Daviess County.	Ohio River	Approximately 1.4 miles upstream of confluence of Cowhide Slough.	*386	*387
			Approximately 3 miles downstream of confluence of Yellow Creek.	*389	*390
		Persimmon Ditch	Upstream side of Ewing Road	*389	*399
			Downstream side of U.S. Route 60	*402	*403
		Persimmon Ditch Tributary	At confluence with Persimmon Ditch	*403	*403

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Approximately 0.37 mile upstream of confluence with Persimmon Ditch.	#2	*403
		Big Ditch	Approximately 0.3 mile south of intersection of South Town Boulevard and Carter Rod.	*390	*392
			At the intersection of Yates Drive and Bulfinch Avenue.	*397	*392
		Scherm Ditch	Approximately 200 feet downstream of Chippewa Drive.	#2	*397
			Just upstream of Mayfair Drive	#2	*399
		Devins Ditch	Approximately 150 feet upstream of Conway Avenue.	None	*391
			Approximately 0.1 mile downstream at Audubon Parkway.	None	*396
		Tamarack Ditch	Approximately 1,500 feet downstream of Bertke Street.	*397	*395
			At Windsor Avenue	#2	*397
		Goetz Ditch	Upstream side of South Town Boulevard .	*393	*395
			Approximately 0.25 mile upstream of Lewis Lane.	#2	*397
		Harsh Ditch	Approximately 750 feet upstream of Veach Road.	*394	*395
			At downstream side of 27th Street	*399	*398
		West Tributary to Harsh Ditch.	Upstream side of Abandoned Railroad	*394	*396
			Downstream side of Wild Wood Drive	#1	*397
		Horse Fork	Approximately 0.4 mile downstream of Veach Road.	*391	*392
			Approximately 0.5 mile upstream of Old Hartford Road.	*403	*404
		Panther Creek	Approximately 0.6 mile east of the intersection of South Town Boulevard and Todd Bridge Road.	None	*392
			At the intersection of Sutherland Road and Veach Road.	None	*392

Maps available for inspection at the Owensboro Municipal Planning Commission, 101 East 4th Street, Owensboro, Kentucky.

Send comments to The Honorable David Adkinson, Mayor of the City of Owensboro, Daviess County, P.O. Box 847, Owensboro, Kentucky 42302.

Missouri	Independence (city) Clay and Jackson Counties.	Bundschu Creek	At the confluence with Little Blue River	*739	*739
			Approximately 200 feet downstream of Bly Road.	*747	*746
			Approximately 100 feet upstream of Mississippi Pacific Railroad.	*750	*750
			At Powell Road	*770	*777
		Spring Branch	At the confluence with Little Blue River	*750	*750
			Just upstream of Missouri Highway 78	*764	*762
			Approximately 100 feet upstream of Swope Drive.	*792	*797
			Just downstream of Peck Road	*813	*827
			Approximately 100 feet downstream of Truman Road.	*869	*860
			Approximately 50 feet upstream of Kieger Road.	*884	*882
		South Fork Spring Branch	Approximately 840 feet upstream of the confluence with Spring Branch.	*821	*828
			Approximately 80 feet upstream of Lee's Summit Road.	*865	*867
		Crackerneck Creek	Approximately 2,000 feet downstream of Selsa Road.	*755	*755
			Just upstream of Selsa Road	*763	*761
			Approximately 250 feet upstream of State Highway 291.	*786	*794
			Just upstream of Crackerneck Road	*825	*825
			Just upstream of South Leslie Drive	*920	*920
			Approximately 60 feet upstream of Partridge Drive.	*956	*960
		North Fork	Just upstream of Selsa Road	*760	*758

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
		Crackerneck Creek	Approximately 100 feet upstream of Bryn Mawr Drive.	*766	*772
			Approximately 2,400 feet upstream of Viking Drive.	*872	*859
		Adair Creek	At the confluence with Little Blue River	*763	*763
			At Old Highway 71	*778	*775
			Approximately 100 feet upstream of Lee's Summit Road.	*810	*813
			Just upstream of Mills Road	*830	*834
			At entrance to the culvert at Nolan Road	*911	*910
		Adair Creek Tributary No. 1.	Approximately 300 feet upstream of 44th Terrace Extended.	None	*814
			Approximately 110 feet upstream of Interstate Highway 70.	None	*853
		Adair Creek Tributary No. 2.	At the confluence with Adair Creek	*859	*857
			Just downstream of 44th Street	None	*859
			Approximately 100 feet upstream of 42nd Street.	None	*895
			At the entrance to the culvert located just upstream of Interstate Highway 70.	None	*921
		Rock Creek	Approximately 50 feet downstream of Kentucky Road.	None	*747
			Just upstream of Illinois Central Gulf Railroad.	*756	*757
			Approximately 40 feet upstream of Winner Road.	*756	*762
			Approximately 40 feet upstream of Arlington Avenue.	*800	*812
			Just upstream of Sterling Avenue	*857	*857
			Just downstream of 32nd Street	*900	*907
		Sugar Creek	Just upstream of Independence Avenue	*819	*817
			Approximately 50 feet upstream of Claremont Avenue.	*869	*869
			Just upstream of Park Avenue	*916	*914
		Mill Creek	At Kentucky Road	*810	*810
			Approximately 50 feet upstream of Liberty Street.	*894	*894
			Approximately 70 feet upstream of West Jones Street.	*920	*924
			Approximately 75 feet upstream of Nickell Avenue.	*924	*944
			Approximately 380 feet upstream of Independence Avenue (U.S. Highway 24).	None	*960

Maps available for inspection at the Department of Public Works and Engineering, City Hall, City of Independence, 111 East Maple Street, Independence, Missouri.

Send comments to The Honorable Ron Stewart, Mayor, City of Independence, City Hall, 111 East Maple Street, Independence, Missouri 64050.

Missouri	Jefferson County (unincorporated areas).	Joachim Creek	Approximately 2,000 feet upstream of Hematite Road.	*434	*434
			Approximately 400 feet upstream of Missouri Pacific Railroad.	None	*452
			Just downstream of State Highway 21	None	*457
			At downstream corporate limits of City of DeSoto.	*472	*474
		Cotter Creek	At confluence with Joachim Creek	None	*858
			Approximately 500 feet upstream of Victoria Lemay Road.	None	*461
			Approximately 100 feet upstream of State Highway 21.	None	*495
			Approximately 9,400 feet upstream of Whitehead Road.	None	*588
		Sandy Creek	Just upstream of Missouri Pacific Railroad.	None	*413
			Approximately 200 feet upstream of County Highway Z.	None	*414
			Approximately 500 feet upstream of Johnston Road.	None	*434

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Approximately 200 feet downstream of Allen Road.	Non	*452
			Just upstream of State Highway 21	None	*482
			Approximately 1,100 feet upstream of Hayden Road.	None	*569
		Sandy Creek East Tributary.	Approximately 500 feet downstream of Linhorst Road.	None	*431
			Just downstream of Jarvis Road	None	*460
			Approximately 2,000 feet upstream of Sandy Church Road.	None	*487
		Big Creek	At confluence with Sandy Creek	none	*447
			Approximately 600 feed upstream of Allen Road.	None	*459
			Just upstream of Jarvis Road	None	*507
			Approximately 2,100 feet upstream of Jarvis Road.	None	*527
		Sandy Creek West Tributary.	Approximately 100 feet upstream of Jarvis Road.	None	*552
			Approximately 2,800 feet upstream of Jarvis Road.	None	*576
		Glazie Creek	Just Downstream of Moss Hollow Road	*438	*438
			Just upstream of Chasteen Lane	None	*445
			Just downstream of Old Lemay Ferry Road.	None	*512
			Approximately 1,500 feet upstream of Quarry Road.	None	*570
		Moss Hollow Creek	Approximately 360 feet downstream of Moss Hollow Road.	None	*438
			Just upstream of Kentucky Road	None	*523
			Approximately 120 feet upstream of Upper Moss Hollow Road.	None	*544
		Kneff Road Tributary	Approximately 100 feet downstream of County Highway M.	None	*465
			Approximately 100 feet upstream on Kneff Farm Road.	None	*512
			Just upstream of Old Lemay Ferry Road	None	*547
			Approximately 1,050 feet upstream of Dry Fork Road.	None	*612
		Old Lemay Ferry Road Tributary.	At confluence with Glazie Creek	None	*511
			Just downstream of Wedde Road	None	*565
			Just upstream of Old Lemay Ferry Road (first crossing).	None	*633
			Approximately 2,500 feet upstream of Old Lemay Ferry Road (upstream-most crossing).	None	*685
		Dutch Creek	Approximately 200 feet upstream of Little Dutch Creek Road.	None	*468
			Approximately 200 feet upstream of Eime Road.	None	*530
			Approximately 4,250 feet upstream of Eime Road.	None	*571
		Rock Creek	Just upstream of Old Lemay Ferry Road	None	*484
			Just upstream of Lions Den Road	None	*496
			Just upstream of Old State Highway 21	None	*577
			Just upstream of Rustic Trails Drive	None	*652
			Approximately 3,300 feet upstream of Rustic Trails Drive.	None	*686

Maps available for inspection at the Highway Department, 725 Maple Street, Court House, Annex Building, Hillsboro, Missouri.

Send comments to The Honorable Elizabeth Faulkenberry, Chairperson, Jefferson County Board of Commissions, P.O. Box 100, Hillsboro, Missouri 63050.

New York	Hammondsport (village) Steuben County.	Glen Brook	Approximately 625 feet downstream of Pulteney Street.	None	*721
			Approximately 0.4 mile upstream of Pulteney Street.	None	*826

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
Maps available for inspection at the Village Office, 41 Lake Street, Hammondsport, New York.					
Send comments to The Honorable Emery Cummings, Mayor of the Village of Hammondsport, 41 Lake Street, Hammondsport, New York 14840.					
Ohio	Franklin County (unincorporated areas).	Backlick Creek	Upstream of Central College Road (County Route 18).	None	*1,084
			Approximately 0.69 mile upstream of Walnut Street (County Route 19).	None	*1,119
		Bishop Run	Approximately 1,000 feet upstream of confluence with Little Walnut Creek.	None	*751
			At Canal Winchester South Road	None	*780
		Little Walnut Creek	At downstream county boundary	None	*722
			Approximately 0.70 mile upstream of Hayes Road.	*727	*731
		Lisle Ditch (formerly Big Run Tributary).	At confluence with Big Run	*745	*741
			Just downstream of Oregon Road	None	*756
		Big Run	Approximately 0.90 mile upstream of confluence with Little Walnut Creek.	*736	*735
			At downstream county boundary	None	*809
		Georges Creek	Upstream side of C&O Railroad bridge	*752	*747
			Approximately 1,500 feet upstream of U.S. Route 33.	*756	*755
		Spring Run	Approximately 350 feet upstream of County Route 82.	None	*850
			Approximately 0.4 mile upstream of County Route 82.	None	*854
		Unnamed Ponding Area	In the vicinity of the intersection of Corbett Road and Front Street.	None	*733
		Clover Groff Ditch	Approximately 1,060 feet downstream of Interstate Route 70.	*928	*929
			Approximately 0.66 mile downstream of Elliot Road.	*942	*941
		Dry Run	Approximately 160 feet downstream of the downstream CONRAIL.	None	*764
			Approximately 550 feet upstream of Hague Avenue.	None	*796
		Blau Ditch	At confluence with Dry Run	None	*796
			Approximately 550 feet upstream of Maclam.	None	*834
		Barbee Ditch	At confluence with Barnes Ditch	None	*786
			At Trabue Road	None	*826
		Barnes Ditch	Approximately 1,500 feet upstream of of confluence of Snyder Run.	None	*829
			At downstream corporate limits	None	*779
		Faust County Ditch	At Hayden Run Road	*936	*935
			Approximately 1.4 miles upstream of Hayden Run Road.	*942	*941
		Hayden Run	At upstream side of CONRAIL	*911	*907
			At Hayden Run Road	*936	*935
		Snyder Run	Approximately 800 feet upstream of Cross Creek Drive.	None	*823
			Approximately 1,700 feet upstream of Cross Creek Drive.	None	*830
		Molcomb Ditch	At confluence with Tudor Ditch	None	*820
			Approximately 1,700 feet downstream of Interstate Route 270.	None	*857
		Tudor Ditch	Approximately 875 feet upstream of confluence with Scioto River.	None	*780
			Approximately 500 feet downstream of Fishinger Boulevard.	None	*851
		Cramer Ditch	Approximately 150 feet upstream of confluence with Scioto River.	None	*773
			At downstream side of Dublin Road	None	*773
		Shallow Flooding Area	South of County Route 118 and north of C&O Railroad.	None	#1
			Between Big Run and Lisle Ditch (north of Berger Road and south of Hayes Road).	None	#1

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
Maps available for inspection at the Franklin County Zoning Department, 373 South High Street, 15th Floor, Columbus, Ohio.					
Send comments to Ms. Dorothy Teater, President of the Franklin County Board of Commissioners, Franklin County Governmental Building, 373 South High Street, 26th Floor, Columbus, Ohio 43215.					
Pennsylvania	Huntingdon (borough) Huntingdon County.	Juniata River	Approximately 1,550 feet downstream of the confluence of Standing Stone Creek.	*617	*614
			Approximately 1.5 miles upstream of the Cypress Island Bridge.	*641	*638
		Standing Stone Creek	At the confluence with the Juniata River ..	*619	*615
			Approximately 0.7 mile upstream of Penn Street.	*619	*615
		Muddy Run	At the confluence with the Juniata River ..	*621	*619
			Approximately 520 feet upstream of the Penn Central Railroad culvert.	*621	*620
Maps available for inspection at the Borough Hall, 1001 Moore Street, Huntingdon, Pennsylvania.					
Send comments to Mr. Willis L. Shore, Manager for the Borough of Huntingdon, Huntingdon County, 1001 Moore Street, Huntington, Pennsylvania 16652.					
Pennsylvania	Port Carbon (borough), Schuylkill County.	Mill Creek	Aproximately 250 feet upstream of the Rose Street footbridge.	*633	*634
			At upstream corporate limits	*644	*642
Maps available for inspection at the Port Carbon Borough Hall, 301 First Street, Port Carbon, Pennsylvania.					
Send comments to Mr. Michael Smirsky, President of the Port Carbon Borough Council, P.O. Box 71, Port Carbon, Pennsylvania 17965.					
South Carolina	Berkeley County (unincorporated areas).	Ancrum Creek	At confluence with Ancrum Swamp and Limehouse Branch.	None	*35
			Upstream of State Route 61	None	*77
		Bennett Branch	At confluence with Quinby Creek	None	*24
			Approximately 0.8 mile upstream of confluence with Quinby Creek.	None	*29
		Canadys Creek	At confluence with Wadboo Creek	None	*10
			Just upstream of Alternate U.S. Highway 17.	None	*26
		Crawl Creek	Approximately 0.4 mile downstream of U.S. Route 52.	None	*35
			Approximately 100 feet upstream of State Road 773.	None	*77
		Gravel Hill Swamp	Approximately 0.6 mile downstream of State Road 126.	None	*31
			At confluence of Walker Swamp	None	*40
		Halfway Swamp	At confluence with Walker Swamp	None	*55
			Just upstream of State Route 35	None	*73
		Landfill Branch	Approximately 0.3 mile upstream of CSX Transportation.	None	*27
			Approximately 0.7 mile upstream of U.S. Highway 52.	None	*59
		Landfill Branch Tributary No. 1.	At confluence with Landfill Branch	None	*27
			Approximately 100 feet upstream of U.S. Highway 17A.	None	*44
		Landfill Branch Tributary No. 2.	At confluence with Landfill Branch	None	*39
			Approximately 0.59 mile upstream of confluence with Landfill Branch.	None	*46
		Laurel Swamp	Approximately 0.6 mile upstream of Lakewood Dam.	None	*70
			Just upstream of Gross Road	None	*83
		Molly Branch	Approximately 200 feet upstream of CSX Transportation bridge.	*15	*16
			Just upstream of State Road 359	None	*62
		Molly Branch Tributary No. 1.	At confluence with Molly Branch	None	*34
			Just upstream of State Highway 50	None	*46
		Molly Branch Tributary No. 2	At confluence with Molly Branch	None	*34

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Just upstream of State Road 357	None	*47
		Quinby Creek	Approximately 900 feet downstream of State Route 41.	None	*8
			At confluence of Bennett Branch	None	*24
		Northampton Creek	At confluence of Bennett Branch	None	*24
			Approximately 1.3 miles upstream of Northampton Road.	None	*46
		Sandy Run Creek	Approximately 350 feet downstream of U.S. Highway 176.	*53	*54
			Approximately 2.1 miles upstream of U.S. Highway 176.	None	*81
		Sandy Run Creek Tributary No. 1.	At confluence with Sandy Run Creek	None	*58
			Approximately 1.3 miles upstream of confluence with Sandy Run Creek.	None	*73
		Sandy Run Creek Tributary No. 2.	At confluence with Sandy Run Creek	None	*58
			Approximately 1.19 miles upstream of confluence with Sandy Run Creek.	None	*71
		Tributary to Wapoola Creek.	Approximately 0.6 mile upstream of the Wapoola Creek.	None	*18
			Approximately 1.35 miles upstream of U.S. Highway 52.	None	*45
		Walker Swamp	At confluence with Gravel Hill Swamp	None	*40
			Approximately 1 mile upstream of confluence of Halfway Swamp.	None	*72
		Wadboo Creek	At upstream side of State Road 44	None	*10
			At confluence of Canadys Creek	None	*10
		French Quarter Creek	Approximately 1.0 mile upstream of State Road 98 bridge.	*8	*7
			At State Highway 99	*8	*7

Maps available for inspection at the Tax Assessor Office, 223 N. Liveoak, Moncks Corner, South Carolina.

Send comments to Mr. James Rozier, Jr., Berkeley County Administrator, 223 N. Liveoak, Moncks Corner, South Carolina 29461.

Tennessee	Collierville (town) Shelby County.	Wolf River	Approximately 0.75 mile downstream of confluence of Wolf River Lateral J.	*291	*287
			Approximately 0.70 mile upstream of confluence of Wolf River Lateral J.	*292	*289

Maps available for inspection at the Department of Public Services, 167 Washington Street, Collierville, Tennessee.

Send comments to The Honorable Herman W. Cox, Jr., Mayor of the Town of Collierville, 101 Walnut Street, Collierville, Tennessee 38107–2671.

Tennessee	Germantown (city) Shelby County.	Wolf River	About 800 feet upstream of confluence of Wolf River Lateral A.	*256	*258
			Approximately 0.3 mile downstream of confluence of Wolf River Lateral E.	*269	*268

Maps available for inspection at the Department of Engineering, 1930 South Germantown Road, Germantown, Tennessee.

Send comments to The Honorable Charles A. Salvaggio, Mayor of the City of Germantown, 1930 South Germantown Road, P.O. Box 38809, Germantown, Tennessee 38183–0809.

Tennessee	Memphis (city) Shelby County.	Wolf River	At confluence with Mississippi River	*233	*231
			Approximately 0.1 mile downstream of Germantown Road	*261	*262

Maps available for inspection at the City Department of Engineering, 125 North Mid American Mall, Memphis, Tennessee.

Send comments to The Honorable W. W. Herenton, Mayor of the City of Memphis, 125 North Mid America Mall, Memphis, Tennessee 38103.

Tennessee	Millington (city) Shelby County.	North Fork Creek Lateral A.	At the confluence with North Fork Creek	*265	*263
			Approximately 0.44 mile upstream of the confluence with North Fork Creek.	*271	*270

Maps are available for inspection at the City Hall, Millington, Tennessee.

Send comments to The Honorable George R. Harvell, Mayor of the City of Millington, P.O. Box 247, Millington, Tennessee 38083–2211.

Tennessee	Unincorporated Areas of Shelby County.	North Fork Creek Lateral A.	Approximately 0.62 mile upstream of the confluence with North Fork Creek.	*274	*273

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)	
				Existing	Modified
			Approximately 0.16 mile upstream of Sullivan Road.	*321	*273

Maps available for inspection at the Memphis-Shelby County Office of Construction, Code Enforcement, 160 North Mid America Mall, Memphis, Tennessee.

Send comments to The Honorable William N. Morris, Mayor of Shelby County, 160 North Mid America Mall, Memphis, Tennessee 38103.

Virginia	Lawrenceville (town) Brunswick County.	Great Creek	Approximately 0.2 mile downstream of U.S. Business Route 58.	*181	173
			Approximately 0.4 mile upstream of U.S. Business Route 58.	*182	*175
		Roses Creek	Approximately 250 feet downstream of Norfolk and Western Railway.	*183	*179
			Approximately 0.3 mile upstream of U.S. Business Route	*186	183

Maps available for inspection at the Town Manager's Office, Town Hall, 400 North Main Street, Lawrenceville, Virginia.

Send comments to The Honorable Russell O. Slayton, Mayor of the Town of Lawrenceville, 400 North Main Street, Lawrenceville, Virginia 23868.

(Catalog of Federal Domestic Assistance No. 83.100, "Flood Insurance.")

Dated: August 3, 1994.

Richard T. Moore,

Associate Director for Mitigation.

[FR Doc. 94-19509 Filed 8-9-94; 8:45 am]

BILLING CODE 6718-03-P

DEPARTMENT OF TRANSPORTATION

Coast Guard

46 CFR Part 171

[CGD 94-010]

RIN 2115-AE75

Standards for Damage Stability of New Domestic Passenger Vessels

AGENCY: Coast Guard, DOT.

ACTION: Notice of proposed rulemaking with request for comments; notice of public hearing.

SUMMARY: The Coast Guard proposes to amend the rules, on standards for damage stability, that it adopted on December 10, 1992. Amended rules are necessary to relieve certain vessels of an unforeseen regulatory burden. The amended rules proposed here would relieve those vessels of that burden and yet minimize the potential for capsizing and other casualties caused by inadequate damage stability.

DATES: Comments must be received on or before October 11, 1994. A public hearing will be held from 1:30 p.m. to 4 p.m. on September 30, 1994. More information about this public hearing is available from the person identified in FOR FURTHER INFORMATION CONTACT.

ADDRESSES: Comments may be mailed to the Executive Secretary, Marine Safety Council (G-LRA, 3406) [CGD 94-010], Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593-0001, or delivered to room 3406 at the same address between 8 a.m. and 4 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267-1477.

FOR FURTHER INFORMATION CONTACT: Patricia L. Carrigan, Marine Technical and Hazardous Materials Division (G-MTH-3), room 1308, Coast Guard Headquarters, telephone: (202) 267-2988, telfax: (202) 267-4816.

SUPPLEMENTARY INFORMATION:

Request For Data, Views, and Arguments

This notice encourages the submission of comments on the proposed changes to 46 CFR 171.080(e). It is the Coast Guard's goal to implement regulations that will best address both the safety, and the operational needs, of all vessels. All new domestic passenger vessels, as defined in 46 CFR 171.045, must now meet the standards for damage stability in 46 CFR 171.080(e). These standards were based on one developed by the International Maritime Organization (IMO) for any passenger vessel allowed to carry 12 or more passengers on an international voyage (under a "SOLAS Passenger Ship Certificate"). The Coast Guard again seeks advice from owners and operators of vessels, naval architects, shipyards, its own inspectors, classification societies' inspectors, consumers, crews of vessels, and others involved in affected vessels' compliance with § 171.080(e), either as it stands or as this proposed rule would amend it. Interested persons are invited and encouraged to participate by submitting written data, views, and arguments.

Persons submitting comments should include their names and addresses, identify this notice [CGD 94-010], identify the specific paragraph of the section to which each comment applies, and include supporting documents or sufficient detail to indicate the reason for each comment. The Coast Guard will acknowledge receipt of comments if a stamped, self-addressed post card or envelope is enclosed with the comments.

Drafting Information

The principal persons involved in the drafting of this final rule are Patricia L. Carrigan, Project Manager, Office of Marine Safety, Security and Environmental Protection and Patrick J. Murray, Project Counsel, Office of Chief Counsel.

Background and Purpose

Regulatory History

On February 13, 1990, the Coast Guard published [55 FR 5120] a notice of proposed rulemaking (NPRM) entitled Stability Design and Operational Regulations. During the 60-day comment period, the Coast Guard received 28 letters. Only 2 of the 28 included comments on the standards for damage stability of new domestic passenger vessels in the proposed rule.

On September 11, 1992, the Coast Guard published [57 FR 41812] a final rule, also entitled Stability Design and

Operational Regulations. This adopted standards from the proposed rule.

On December 10, 1992, the final rule went into effect. Soon afterward, the Coast Guard received inquiries on the appropriateness of the standards, now in 46 CFR 171.808(e), for certain new domestic passenger vessels.

On July 7, 1993, the Coast Guard published [58 FR 36374] a notice to announce a public meeting on August 5, 1993. This meeting was to discuss what problems were being encountered in complying with the standards and what measures might be appropriate.

On August 5, 1993, at the public meeting, discussions occurred on the application of the standards to certain new domestic passenger vessels, especially those operating in protected and partially-protected waters. Comments indicated that some designers were encountering unexpected difficulties.

The Coast Guard believes that compliance with the current standards is feasible, and achievable with minimal changes in design. But it also believes that it can relax those standards on certain waters without unreasonably degrading safety.

On August 27, 1993, therefore, in response to requests that it reconsider the standards to apply on certain waters, the Coast Guard published [58 FR 45264] a notice temporarily suspending § 171.080(e), for all vessels without SOLAS Passenger Ship Certificates, and reopening the comment period for 90 days. The delay would also allow further research by the Coast Guard into the application of the standard to new domestic passenger vessels.

On February 25, 1994, in response to the comments received, the Coast Guard both published a notice of intent to issue this NPRM and indefinitely extended the temporary suspension of § 171.080(e), for all vessels without SOLAS Passenger Ship Certificates [59 FR 9099].

Reasons for Reconsidering Standards for Damage Stability

Even as recently as February 13, 1990, the sudden growth in the number of excursion vessels and gambling vessels on protected and partially-protected waters, especially western rivers, was unforeseen. By December 10, 1992, therefore, when the current standards came into effect, further research and investigation of the impact of the standards on these vessels had become necessary.

The Coast Guard extended its work with the Volpe Transportation Systems Center of the Department of Transportation to examine at least six more vessels as we had examined a number earlier in the regulatory process. The six vessels so far submitted for examination ply mainly protected and partially-protected waters; they include gambling vessels, a type not examined closely in the earlier study. A detailed analysis of the failures, design changes and economic impact will be available in the regulatory docket when the study concludes.

Comments on Final Rule of December 10, 1992

Comments on Final Rule in General

Nine comments conceded that some degree of after-damage stability is needed. Three comments maintained that the current regulations aim at ensuring "total survivability" rather than a reasonable degree of safety. Three comments urged that the regulations should not be relaxed without more evidence that relaxing them is necessary, and even then not without following the correct legal procedure. Two comments stated that suspending a regulation already in effect 6 months was unlawful; they stated further that no balance was achieved in this suspension, that the suspension favored purely shipyards, owners and operators, and naval architects, and that no response had arrived from passengers, crews, or insurance underwriters. One comment, further, stated that 3 years had been necessary to accomplish the regulation, 1½ months to emasculate it.

One comment stated that, far from needing a relaxed standard, vessels on inland rivers might need a standard more stringent than that of SOLAS. Inland rivers face many dangers not considered in the development of international standards, including treacherous currents and heavy traffic. New standards for vessels on these rivers should actually increase residual buoyancy and reduce heel and trim to facilitate evacuation.

Two comments questioned the use of the standard from SOLAS for coastwise domestic routes as well as inland routes. Two more questioned its use for any domestic route, even for exposed waters.

Response to Comments on Final Rule in General

The Coast Guard agrees that passenger safety is its primary concern and that the old standards for damage stability were grossly inadequate. The Coast Guard disagrees that the current standards aim at, let alone ensure, "total survivability." However, the Coast Guard is bound to consider seriously the input received from the industry, and to determine whether these standards are having a greater impact than intended. The Coast Guard has invited and will continue to invite comment on these standards from all interested parties, observing that it cannot force those sectors of the industry not heard from to develop a position on these standards. However, in everyone's interest, the Coast Guard makes safety its primary concern in all standards for vessel design. The Coast Guard followed proper legal procedures in the suspension of these standards.

The Coast Guard agrees that smaller vessels, with fewer passengers, should receive less burdensome treatment. However, where these vessels venture into exposed waters, the hazard to them is much greater than to large ones.

Responding to reasoned comments, the Coast Guard considers the best approach one that applies standards in tiers: full rigor for craft most vulnerable (for whatever reason, including exposure of waters), less rigor for those less vulnerable. This approach has determined the shape of this proposed rule.

Comments on Final Rule Citing Particular Provisions

1. Current §§ 171.080(e)(1) and (e)(2)

Seven comments stated that the standard of a 15 degree range of stability in paragraph (e)(1) is unreasonable for wide-beam vessels and should be deleted if the area standard is met. One comment suggested that the range be limited to the angle developed from application of wind heel in § 170.070.

Seven comments found paragraph (e)(2) completely unreasonable in its treatment of watertight closures. Four comments stated that weathertight closures should not be considered points of flooding in damage stability.

2. Current § 171.080(e)(3)

Four comments found paragraph (e)(3) to be reasonable.

3. Current § 171.080(e)(4)(i)

One comment stated that there should be no standard for passenger heeling moment, because its author's vessels operate close to shore and have crews trained in passenger control to avoid extreme heeling moments. Four comments stated that the standard of a 0.10 meter righting arm for passenger heeling moment seemed reasonable. Five comments stated that the standard for passenger heeling moment should be limited to that for intact stability in § 171.050. One comment stated that standards for passenger heeling moments are necessary even for inland

waters. One comment stated that the standard for residual passenger heeling moment exceeds those for intact wind heeling moment and intact passenger heeling moment. One comment cited a 150-passenger aluminum "T-boat" (small passenger vessel) built in 1988 as a sample of a typical vessel that cannot comply with the standard for passenger heeling moment. One comment stated that, of the vessels examined that met the old damage stability standard easily, four had flooded decks trying to meet the current one for passenger heeling moment.

4. Current § 171.080(e)(4)(iii)

One comment suggested that we delete the standard for lifeboat heeling moment since no "T-boat" has davit-launched lifeboats.

Response to Comments on Final Rule Citing Particular Provisions

It is unacceptable for standards (whether governing design or operation) to assume that all vessels will stay close to shore or that the crew will, in all situations, be able to control passengers so as to avoid extreme heeling moments. However, a tiered approach, based on route, will give these factors some weight. Again, equivalency between standards for intact stability and those for damage stability is not the goal. Those for intact stability must ensure sufficient stability in all intact conditions of operation, while those for damage stability must ensure sufficient stability to keep the vessel afloat and allow time for safe evacuation of the passengers in all required cases of damage or inadvertent flooding. The putative 1988-built vessel was not available to examine for compliance with the standards as, contrary to the comment, it was never built; the only class of vessels it typifies is a class of vessels never built. Regardless, the fact that existing vessels cannot meet a new design standard does not in any way justify continuing to build new vessels to an old design standard that is grossly inadequate when a new standard can be easily incorporated into the design of new vessels. Most "T-boats" do not have lifeboats; but one existing domestic passenger vessel does have davit-launched lifeboats, and these regulations must consider all possible eventualities.

Discussion of Major Changes Proposed Here

The changes would incorporate a tiered approach to standards for damage stability, an approach based on a vessel's route. They would establish three categories: exposed waters, partially-protected, and protected. Definitions for these terms appear in § 170.050. On exposed waters, where a vessel could encounter the greatest force from wind and waves, the most severe standard would apply. On partially-protected and protected waters, less rigorous standards would apply.

This tiered approach would be manifest in two specific parts of the standard: in the range of positive stability beyond the damaged equilibrium angle that a vessel must attain and in the righting arm value that the vessel must attain.

A vessel on exposed waters would have to attain a range of positive stability beyond the damaged equilibrium angle of 15 degrees; on partially-protected waters, of 10 degrees; and, on protected waters, of 5 degrees. A vessel on partially-protected waters would have to attain a righting arm value of two-thirds of that for a vessel on exposed waters; and a vessel on protected waters, one of one-third of that for a vessel on exposed waters. The proposed rule would clarify what constitutes a new vessel. It would delete part of current § 171.080(e)(2). The opening paragraph of new § 171.080(f) now addresses downflooding and defines the use of weathertight and watertight openings. Paragraphs (4)(i) and (ii) of new § 171.080(f) now clarify placement of passengers for calculating heeling moments involving passengers.

Regulatory Evaluation

This proposed rule would not be a significant regulatory action under Executive Order 12866 on Federal Regulation and would not be significant under the Regulatory Policies and Procedures of the Department of Transportation [DOT Order 2100.5 (May 22, 1980)]. It has not been reviewed under E.O. 12866. Nonetheless, a Regulatory Evaluation is available in the docket for inspection or copying where indicated under ADDRESSES.

The marine industry would incur an estimated annual benefit of $250,000 as a result of this proposed rule. There is no cost associated with this rule, which would reduce the number of vessels affected by current standards.

Small Entities

The Coast Guard has determined that this proposed rule would not have a significant economic impact on a substantial number of small entities. Therefore, the Coast Guard certifies under § 605(b) of the Regulatory Flexibility Act [5 U.S.C. 601 et seq.] that this proposed rule would not have a significant economic impact on a substantial number of small entities.

Collection of Information

This proposed rule would not increase the paperwork burden on the public. The only paperwork involves ship design calculations used in the development of stability information, but this information is already subject to review by the Coast Guard under 46 CFR 170.110. The Coast Guard previously submitted the requirements regarding its collection of this information, developed from these and other calculations, to the Office of Management and Budget (OMB) for review under the Paperwork Reduction Act [44 U.S.C. 3501 et seq.], and the OMB approved them. The applicable control numbers from OMB are 2115–0095, 2115–0114, 2115–0130, and 2115–0131.

For further information, write or call the Information Requirements Division, M–34, Officer of the Secretary of Transportation, 400 Seventh Street SW., Washington, DC 20593, (202) 366–4735.

Federalism

The Coast Guard has analyzed this proposed rule in accordance with the principles and criteria contained in Executive Order 12612, and has determined that the rule would not have sufficient implications for federalism to warrant the preparation of a Federalism Assessment.

This proposed rule would establish standards for damage stability of new domestic passenger vessels. The authority to establish these standards in all navigable waters of the United States is committed to the Coast Guard by Federal statutes. Furthermore, since passenger vessels tend to move from port to port in the national and international marketplace, standards for them should be of at least national scope to avoid unreasonably burdensome variances. Therefore, the Coast Guard intends this rule to preempt State action addressing these standards.

Environment

The Coast Guard has considered the environmental impact of this proposed rule and concluded that, under paragraph 2.B.2.c of Commandant Instruction M16475.1B, this rule is categorically excluded from further environmental documentation. This rule would require a minimal standard for damage stability of new domestic passenger vessels. It would not govern how potential pollutants or hazardous materials are carried on board these vessels, though stabler vessels should reduce the number of uncontrolled releases of pollutants or hazardous

materials into the environment. It does not result in any—

1. Significant cumulative impacts on the human environment;

2. Substantial controversy or substantial change to existing environmental conditions;

3. Impacts more than minimal on properties protected under sub-§ 4(f) of the DOT Act as superseded by Public Law 97–449, or under § 106 of the National Historic Preservation Act; or

4. Inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment.

A Determination of Categorical Exclusion is available in the docket for inspection or copying where indicated under **ADDRESSES**.

List of Subjects in 46 CFR Part 171

Marine Safety, Passenger vessels.

For the reasons set out in this preamble, the Coast Guard proposes to amend Title 46, Chapter I, Code of Federal Regulations, as follows:

PART 171—SPECIAL RULES PERTAINING TO VESSELS CARRYING PASSENGERS

1. The citation of authority for Part 171 is revised to read as follows:

Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801; 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

2. In § 171.080, paragraph (f) is redesignated as paragraph (h), paragraphs (d) through (e) are redesignated as paragraphs (e) through (f), new paragraphs (d) and (g) are added, and newly designated paragraphs (e) and (f) are revised to read as follows:

§ 171.080 Damage stability standards for vessels with Type I or Type II subdivision.

* * * * *

(d) *Definitions.* For the purposes of paragraphs (e) and (f), the following definitions apply:

(1) *New vessel* means a vessel—

(i) For which a building contract is placed on or after [Insert date 90 days after date of publication of the final rule in the **Federal Register**.];

(ii) In the absence of a building contract, the keel of which is laid, or which is at a similar stage of construction, on or after [Insert date 90 days after date of publication of the final rule in the **Federal Register**.];

(iii) The delivery of which occurs on or after January 1, 1997;

(iv) For which application for reflagging is made on or after January 1, 1997; or

(v) That has undergone a major conversion—

(A) For which the conversion contract is placed on or after [Insert date 90 days after date of publication of the final rule in the **Federal Register**.]

(B) In the absence of a conversion contract, the conversion of which is begun on or after [Insert date 90 days after date of publication of the final rule in the **Federal Register**.]; or

(C) That is completed on or after January 1, 1997.

(2) Existing vessel means other than a new vessel.

(e) Damage survival for all existing vessels except those vessels authorized to carry more than 12 passengers on an international voyage. An existing vessel is presumed to survive assumed damage if it meets the following conditions in the final stage of flooding:

* * * * *

(f) Damage survival for all new vessels except those vessels authorized to carry more than 12 passengers on an international voyage. A new vessel is presumed to survive assumed damage if it is shown by calculations to meet the conditions set forth in paragraphs (f)(1) through (f)(6) of this section in the final stage of flooding and to meet the conditions set forth in paragraphs (f)(7) and (f)(8) of this section in each earlier stage of flooding. For the purposes of establishing boundaries to determine compliance with the requirements in paragraphs (f)(1) through (f)(8), openings that are fitted with weathertight closures and that are not submerged during any stage of flooding will not be considered as downflooding points.

(1) Each vessel must have positive righting arms for a minimum range beyond the angle of equilibrium as follows:

Vessel service	Required range
Exposed waters, oceans, or Great Lakes winter.	15 degrees.
Partially-protected waters or Great Lakes summer.	10 degrees.
Protected waters	5 degrees.

(2) Each vessel must not have any opening through which downflooding can occur within the minimum range specified in paragraph (f)(1) of this section.

(3) Each vessel must have an area under each righting arm curve of at least 0.015 meter-radians, measured from the angle of equilibrium to the smaller of the following angles:

(i) The angle at which downflooding occurs; or

(ii) The angle of vanishing stability.

(4) Each vessel must have within the positive range a righting arm (GZ) equal to or greater than the GZ as calculated below:

$$GZ(m) = C*\left(\frac{\text{Heeling Moment}}{\Delta} + 0.04\right)$$

Where—

C=1.00 for vessels on exposed waters, oceans, or Great Lakes winter

C=0.75 for vessels on partially-protected waters or Great Lakes summer

C=0.50 for vessels on protected waters

GZ=0.10 meter or as calculated by the formula above, whichever is greater.

Δ=intact displacement

Heeling moment=greatest of the heeling moments as calculated in paragraphs (i) through (iv) below.

(i) The passenger heeling moment is calculated assuming—

(A) Each passenger weights 75 kilograms;

(B) Each passenger occupies 0.25 square meter of deck area; and

(C) All passengers are distributed, on available deck areas unoccupied by permanently affixed objects, toward one side of the vessel on the decks where passengers would move to enter lifesaving equipment or leave the vessel in case of flooding, and so that they produce the most adverse heeling moment.

(ii) The heeling moment due to asymmetric escape routes for passengers, if the vessel has asymmetric escape routes for passengers, is calculated assuming—

(A) Each passenger weighs 75 kilograms;

(B) Each passenger occupies 0.25 square meter of deck area; and

(C) All passengers are distributed, on available deck areas unoccupied by permanently affixed objects, toward one side of the vessel on the decks where passengers would move to enter lifesaving equipment or leave the vessel in case of flooding, and so that they produce the most adverse heeling moment.

(iii) The heeling moment due to launching of survival craft is calculated assuming—

(A) All survival craft, including davit-launched liferafts and rescue boats, fitted on the side to which the vessel heels after sustained damage, are swung out if necessary, fully loaded and ready for lowering;

(B) Persons not in the survival craft that are swung out and ready for lowering are distributed about the center line of the vessel so that they do not provide additional heeling or righting moments; and

(C) Survival craft on the side of the vessel opposite that to which the vessel heels remain stowed.

(iv) The heeling moment due to wind pressure is calculated assuming—

(A) A wind pressure of 120 Newtons per square meter;

(B) The wind acts on an area equal to the projected lateral area of the vessel above the waterline corresponding to the intact condition; and

(C) The wind lever arm is the vertical distance from a point at one-half the mean draft, or the center of area below the waterline, to the center of the lateral area.

(5) Each vessel must have an angle of equilibrium that does not exceed—

(i) 7 degrees for one compartment flooding;

(ii) 12 degrees for two compartment flooding; or

(iii) 15 degrees for one or two compartment flooding where—

(A) The vessel has an area under each righting arm curve, when the equilibrium angle is between 7 degrees and 15 degrees, of at least 0.035 meter-radians, measured from the angle of equilibrium to the smaller of the angle at which downflooding occurs or the angle of vanishing stability; and

(B) The vessel has positive righting arms for at least 20 degrees beyond the angle of equilibrium.

(6) The margin line of the vessel must not be submerged when the vessel is in the equilibrium condition.

(7) Each vessel must have a maximum angle of equilibrium that does not exceed 15 degrees during each earlier stage of flooding.

(8) Each vessel must have a maximum righting arm of at least 0.05 meter and positive righting arms for a range of at least 7 degrees during each earlier stage of flooding. Only one breach in the hull and only one free surface need be assumed when meeting the requirements of this paragraph.

(g) Damage survival for vessels authorized to carry more than 12 passengers on an international voyage. A vessel is presumed to survive assumed damage if it is shown by design calculations to comply with the damage stability required for that ship by the International Convention for the Safety of Life at Sea, 1974 as amended, chapter II–1, part B, regulation 8.

* * * * *

Dated: August 3, 1994.

Joseph J. Angelo,

Acting Chief, Office of Marine Safety, Security and Environmental Protection.

[FR Doc. 94–19515 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–14–M

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 685

[Docket No. 940711–4211; I.D. 050294C]

RIN 0648 AF77

Pelagic Fisheries of the Western Pacific Region; Vessel Monitoring System

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS issues a proposed rule that would implement an experimental vessel monitoring system (VMS) program in the pelagic longline fishery around Hawaii. Under this program, vessels operating in this fishery would have to carry vessel monitoring equipment owned and operated by NMFS. The equipment provides immediate vessel identification and location, and would be used by NMFS and the United States Coast Guard (USCG) to facilitate enforcement of regulations that prohibit fishing in closed areas. This experimental program would operate for 3 years or less, during which time the Western Pacific Fishery Management Council (Council) and NMFS would conduct reviews of the performance and cost effectiveness of the program and make recommendations regarding the future use of VMSs in this and other fisheries.

DATES: Comments must be received by September 9, 1994.

ADDRESSES: Comments on the proposed rule should be sent to Rodney R. McInnis, Acting Director, Southwest Region, NMFS, 501 West Ocean Boulevard, Suite 4200, Long Beach, CA 90802–4213.

FOR FURTHER INFORMATION CONTACT: Mr. Svein Fougner at (310) 980–4034 or Mr. Eugene F. Proulx at (310) 980–4049.

SUPPLEMENTARY INFORMATION: Amendment 3 (56 FR 52214, October 18, 1991) to the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region (FMP) created a protected species zone of 50 nautical miles (am) around the Northwestern Hawaiian Islands (NWHI), which is closed to pelagic longline fishing. This action was taken to protect endangered Hawaiian monk seals from longline fishing activity.

Amendment 4 (56 FR 51849, October 16, 1991) to the FMP established an administrative procedure to govern the Council's review of VMS technology and possible adoption of VMS requirements for the fishery. This action was taken to develop an effective way of monitoring longline fishing vessels without placing excessive restrictions on fishermen.

Amendment 5 (57 FR 7661, March 4, 1992) to the FMP created closed areas to pelagic longline fishing around the main Hawaiian Islands to prevent gear conflicts between pelagic longline and small-boat fishermen. The closed areas are generally within 75 nm of the Islands of Kauai, Niihau, and Oahu, and within 50 nm of the Islands of Maui, Molokai, Lanai, Kahoolawe, and Hawaii and vary in size on a seasonal basis. Further adjustments may be made through an administrative procedure that includes an opportunity for public comment.

Because the longline fleet has been growing rapidly, Amendment 7 (59 FR 26979, May 25, 1994) established a limited entry program for the Hawaii longline fishery for pelagic species in order to prevent adverse impacts on pelagic resources, protected species such as the Hawaiian monk seal and sea turtles, and other fishing vessels.

Patrolling area closures is an expensive and difficult task for NMFS enforcement agents and the USCG. The distances that have to be covered are large, and there is minimal logistic support for patrol aircraft or patrol vessels in the NWHI. Given these enforcement difficulties, NMFS and the USCG have explored alternative methods of monitoring closed areas. One promising alternative is the use of a VMS. A VMS consists of equipment placed aboard a vessel that is capable of transmitting to NMFS and the USCG the identity and location of that vessel. By monitoring these transmissions, illegal fishing by the vessels in closed areas might be detected immediately without using patrol aircraft and vessels.

In addition to compliance monitoring, a VMS offers several other potential uses. First, a VMS would enhance at-sea safety by allowing NMFS and the USCG to locate vessels immediately in the event of distress situations. Second, available computer attachments would enable users to either receive or transmit information such as news and weather broadcasts, or personal communications. Finally, in this fishery, consistent with an incidental take statement issued in conjunction with a Biological Opinion dated June 10, 1993, information collected could be used to verify the accuracy of logbook reports, thereby aiding in the conservation of protected species such

as threatened and endangered sea turtles.

In 1991, the Council, NMFS, and the USCG coordinated a demonstration of several automated vessel monitoring technologies to confirm whether remote communication links would be reliable in the Western Pacific. The purpose of the demonstration was to review the available vessel monitoring technologies for routine enforcement operations and to assist the Council in deciding how VMS could be used for enforcement. This effort helped the Council develop minimum performance criteria to be used for designing a fleet-wide VMS. Each technology that was examined represented a different approach to providing vessel position information.

The minimum performance standards identified by the Council for enforcement applications of satellite or radio vessel monitoring technology are the following:

a. The system must deliver accurate, real-time data for processing at a station on shore;

b. Position reports must contain vessel identification, the latitude and longitude of the vessel, and the date and time of the fix (i.e., positional fix);

c. Shipboard equipment must be capable of providing fully automatic, hands-off position reports and battery-powered operation for a given period of time. Units should also accept vessel power to charge internal batteries;

d. Shipboard equipment must be self-initializing when power is interrupted to maintain automatic operation;

e. The Global Positioning System should be used for VMS units where communication transmitters are linked with navigation receivers in order to obtain accurate position information;

f. The shipboard equipment must be built to withstand the rigors of operation on a commercial high-seas fishing vessel in the Central and Western Pacific;

g. The system must not require routine maintenance, and should be easily serviceable by trained technicians;

h. The system design should permit the exchange, at sea, of sealed components by individuals who may not be trained technicians; and

i. The shipboard equipment must be capable of monitoring vessels throughout their range.

After the establishment of these performance standards, NMFS and the USCG conducted a second test. This test indicated that one of the initial technologies examined might meet the performance requirements established by the Council, and merited further study in a larger experimental program.

At a regular meeting of the Council on December 2, 1992, the members adopted a VMS policy to ensure that the development and application of a VMS in the Central and Western Pacific is carried out in a manner that is comprehensive, attendant to the needs of management authorities, cost-effective, and fair to the fishing industry. That policy states that the Council recognizes that electronic monitoring systems may be an effective and desirable technology for use in fisheries management.

The Council established a VMS Committee to develop and review proposed VMS initiatives, policies, and other related topics addressed in the Council's fishery management plans under the authority of the Magnuson Fishery Conservation and Management Act (Magnuson Act). Significant VMS decisions that would involve changes in the equipment or costs to be borne by the fishermen will be made by the full Council.

On March 31, 1994, NMFS published a policy (59 FR 15180) that established standards for all VMS used in U.S. fisheries. The policy covers the technical requirements of the equipment, the security of the system, and the confidentiality of the data. Implementation of the proposed rule would be consistent with that policy.

While VMSs are a promising alternative and supplement to existing enforcement techniques, uncertainties remain. These uncertainties include, but are not limited to:

1. The extent to which the entire range of the vessels throughout the Pacific can be covered in practice;

2. The amount of other enforcement resources necessary to confirm apparent violations detected through use of the system;

3. The feasibility of applying the system to other fisheries with different fishing characteristics;

4. The extent to which the VMS hardware and software used would allow the integration of U.S. fishing vessels into developing regional VMS systems;

5. The cost effectiveness, from an enforcement perspective, of VMSs as compared to traditional methods of enforcement; and

6. The social and economic effects of establishing a VMS, such as assessing the impacts on the owners, captains, crew, fishing behavior, and regulatory compliance.

Given these considerations, NMFS proposes to implement an experimental VMS program. Under this program, all vessels with a limited entry permit for the Hawaiian pelagic longline fishery would be required to carry a NMFS-owned vessel monitoring unit. As units become available for installation, the NMFS Office of Enforcement would schedule vessels for installation of a VMS unit. To the extent possible, installations would be scheduled to accommodate the vessel's fishing schedule. Reasonable notice of the proposed installation date would be given to the holder of the limited entry permit for the vessel.

The NMFS headquarters Office of Enforcement would exercise overall supervision and evaluation of the program, and determine when the objectives of the program have been met, thereby warranting termination of the experimental program. Day-to-day responsibility for implementing this program, however, would rest with the NMFS Special Agent-in-Charge (SAC) in Long Beach, CA.

This proposed action follows an extensive review of such systems by the Council under the guidance of Amendment 4 to the FMP and was approved by the Council at its meeting on September 14–16, 1993. The following elements were approved by the Council and are incorporated in this proposed rule:

1. NMFS would select the necessary VMS equipment and provide it at no cost to the permit holder. This equipment would remain the property of NMFS and must be returned to NMFS upon request;

2. All equipment would meet the performance standards adopted by the Council listed above;

3. Interfering with the equipment in any way would be prohibited;

4. The SAC would be authorized to permit a vessel owner to have additional equipment linked to the VMS unit, e.g., computer terminal for communications and data transfer;

5. Vessels with VMS units would not be required to notify NMFS when transiting the protected species zone (as they are now required to do); and

6. The Council and NMFS would evaluate the VMS program for a period of time not to exceed 3 years, and make decisions regarding the continued or modified use of VMSs in this fishery and other fisheries under the jurisdiction of the Council.

In addition, NMFS would also evaluate this VMS program in regard to the uses of VMSs in fisheries in other areas.

A Biological Opinion and Incidental Take Statement under the Endangered Species Act were issued by NMFS on this fishery on June 10, 1993. The Biological Opinion concluded that the longline fishery is not likely to

jeopardize the continued existence of any endangered or threatened species of sea turtle, provided that certain conditions set forth in an incidental take statement were met. This statement includes, as a reasonable and prudent measure, use of an automated VMS to confirm the location of those vessels without observers to help verify the accuracy of logbook reports. While being promulgated for enforcement purposes, this proposed rule would also help NMFS satisfy the automated VMS requirements set forth in the incidental take statement. A new Biological Opinion on this fishery is expected to be issued by NMFS during the summer of 1994.

NMFS is sensitive to the concerns fishermen might have with regard to their fishing locations becoming widely known. NMFS will be reviewing the level of accuracy and precision required to meet the above obligations with enforcement agents and scientists and will determine the degree of monitoring required. Whatever final decisions are made on the frequency of reports needed, data indicating individual vessel positions would be treated as confidential in accordance with the Trade Secrets Act.

Classification

This proposed rule is published under the authority of the Magnuson Act, 16 U.S.C. 1801 *et seq.*, and was prepared at the request of the Council. The Assistant Administrator for Fisheries, NOAA (AA), has initially determined that this proposed rule is consistent with the Magnuson Act and other applicable law.

This proposed rule has been determined to be not significant for purposes of E.O. 12866.

The General Counsel of the Department of Commerce certified to the Chief Counsel for Advocacy of the Small Business Administration that this proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities for purposes of the Regulatory Flexibility Act. All the costs of installing and operating the proposed reporting system are to be borne by NMFS. Installation of the required equipment is to be done at minimal inconvenience to the vessel owner. Implementing the proposed action also will relieve vessel operators from the current requirement to notify NMFS of the vessel's entrance and exit from the protected species zone. The installed equipment may be used, in conjunction with supplemental equipment provided by the vessel, by the vessel operator at the vessel's own expense, for vessel communications such as obtaining updated weather reports or communication to the vessel owner. The Council has concurred with the establishment of a mandatory observer program and an electronic VMS for the longline fishery as required by the Biological Opinion and Incidental Take Statement, issued on June 10, 1993.

List of Subjects in 50 CFR Part 685

American Samoa, Fisheries, Fishing, Guam, Hawaiian Natives, Northern Mariana Islands.

Dated: August 3, 1994.

Gary Matlock,

Acting Assistant Administrator for Fisheries, National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 685 is proposed to be amended as follows:

PART 685—PELAGIC FISHERIES OF THE WESTERN PACIFIC REGION

1. The authority citation for part 685 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*

2. In § 685.2, the definitions of "Special Agent-in-Charge" and "vessel monitoring system unit (VMS unit)" are added in alphabetical order, as follows:

§ 685.2 Definitions.

* * * * *

Special Agent-in-Charge (SAC) means the Special Agent-in-Charge, NMFS Office of Enforcement, Southwest Region or the designee of the Special Agent-in-Charge.

* * * * *

Vessel monitoring system unit (VMS unit) means the hardware and software equipment owned by NMFS, installed on vessels by NMFS, and required by this part to track and transmit the positions of longline fishing vessels.

3. In § 685.5, new paragraphs (aa)-(hh) are added as follows:

§ 685.5 Prohibitions.

* * * * *

(aa) Fail to carry a VMS unit as required under § 685.16.

(bb) Interfere with, tamper with, alter, damage, disable, or impede the operation of a VMS unit or to attempt any of the same; or to move or remove a VMS unit without the prior permission of the SAC.

(cc) Make a false statement, oral or written, to an authorized officer, regarding the use, operation, or maintenance of a VMS unit.

(dd) Fish for, catch, or harvest Pacific pelagic management unit species with longline gear without a VMS unit on board the vessel after installation of the VMS unit by NMFS.

(ee) Possess on board a vessel without a VMS unit Pacific pelagic management unit species harvested with longline gear after NMFS has installed the VMS unit on the vessel.

(ff) Interfere with, impede, delay, or prevent the installation, maintenance, repair, inspection, or removal of a VMS unit.

(gg) Interfere with, impede, delay, or prevent access to a VMS unit by a NMFS observer.

(hh) Connect or leave connected additional equipment to a VMS unit without the approval of the SAC.

3. Section 685.14 is revised to read as follows:

§ 685.14 Transit notification.

The operator of a longline fishing vessel subject to this part who does not have on board a VMS unit while transiting the protected species zone, must notify the NMFS Southwest Enforcement Office at (808) 541–2727 immediately upon entering and immediately upon departing the protected species zone. The notification must include the name of the vessel, name of the operator, date and time (GMT) of entry or exit from the protected species zone, and location of the vessel by latitude and longitude to the nearest minute.

5. Section 685.16 is amended by adding text and revising its section heading to read as follows:

§ 685.16 Vessel monitoring system.

(a) *VMS unit.* Only a VMS unit owned by NMFS and installed by NMFS complies with the requirements of this part.

(b) *Notification.* After a limited entry permit holder has been notified by the SAC of a specific date for installation of a VMS unit in the permit holder's vessel, the vessel must carry and operate the VMS unit after the date scheduled for installation.

(c) *Fees and charges.* During the experimental VMS program, a Hawaii longline limited entry permit holder shall not be assessed any fee or other charges to obtain and use a VMS unit, including the communication charges related directly to requirements under this section. Communication charges related to any additional equipment attached to the VMS unit by the owner or operator shall be the responsibility of the owner or operator and not NMFS.

(d) *Permit holder duties.* The holder of a limited entry permit and the master of the vessel operating under the permit must:

(1) Provide opportunity for the SAC to install and make operational a VMS unit after notification;

(2) Carry the VMS unit on board whenever the vessel is at sea; and

(3) Not remove or relocate the VMS unit without prior approval from the SAC.

(e) *Authorization by the Special Agent-in-Charge.* The SAC has authority over the installation and operation of the VMS unit. The SAC may authorize the connection or order the disconnection of additional equipment, including a computer, to any VMS unit when deemed appropriate by the SAC.

(f) *Observers.* NMFS observers shall have access to VMS units to verify operation, obtain data, and use the communication capabilities of the units for official purposes.

(g) *Review.* During the experimental VMS program, which will end no later than [*Insert date 3 years after the effective date of the final rule*], the Council and NMFS will conduct reviews of the performance and cost-effectiveness of the program requiring VMS units in this fishery. The Council may recommend that the program be continued, terminated, or modified with respect to operation, equipment, or other aspects of the program.

[FR Doc. 94–19396 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–22–W

Notices

Federal Register
Vol. 59, No. 153
Wednesday, August 10, 1994

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

AGENCY FOR INTERNATIONAL DEVELOPMENT

Public Information Collection Requirements Submitted to OMB for Review

The Agency for International Development (A.I.D.) submitted the following public information collection requirements to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Comments regarding these information collections should be addressed to the OMB reviewer listed at the end of the entry. Comments may also be addressed to, and copies of the submissions obtained from the Records Management Officer, Renee Poehls, (202) 736–4748, M/AS/ISS/RM, Room 930B, N.S., Washington, DC. 20523.

Date Submitted: July 26, 1994
Submitting Agency: Agency for International Development
OMB Number: None
Form Number: None
Type of Submission: New Submission
Title: Survey by telephone of U.S. Business firms exporting to Egypt under AID's financing process (CIP)
Purpose: USAID/Cairo has contracted with Development Associates of Arlington, Virginia to evaluate the economic and development impact of USAID's Commodity Import Program (CIP) in Egypt. Of importance is the impact it has had on American companies, not only in current exports to Egypt, but in opening the possibilities for additional exports. This survey is aimed at determining that impact.
Annual Reporting Burden: Respondents: 150, annual responses: 2250; hours (minutes) per response: 20; annual burden hours: 750
Reviewer: Jeffery Hill (202) 395–7340, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, D.C. 20503

Dated: August 1, 1994.
Elizabeth Baltimore,
Bureau of Management, Administrative Service, Information Support Services Division.
[FR Doc. 94–19467 Filed 8–9–94; 8:45 am]
BILLING CODE 6116–01–M

Public Information Collection Requirements Submitted to OMB for Review

The Agency for International Development (A.I.D.) submitted the following public information collection requirements to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Comments regarding these information collections should be addressed to the OMB reviewer listed at the end of the entry. Comments may also be addressed to, and copies of the submissions obtained from the Records Management Officer, Renee Poehls, (202) 736–4748, M/AS/ISS/RM, Room 930B, N.S., Washington, DC 20523.

Dated Submitted: July 28, 1994
Submitting Agency: Agency for International Development
OMB Number: OMB 0412–0510
Form Number: None
Type of Submission: Renew
Title: Information Collection—Requirements Contained in A.I.D.'s Handbook 13 (Grants and Cooperative Agreement)
Purpose: Section 635(b) of the Foreign Assistance Act (FAA) authorizes A.I.D. to make grants and cooperative agreements with any corporation or other body of persons, whether within or without the United States, and international organizations furtherance of the purposes and within limitations of the FAA. A.I.D. is required to ensure that recipients are responsible and that they prudently manage public funds. These information collection requirements are necessary for USAID to review and monitor grantee's responsibility and compliance with U.S. Government requirements concerning use of foreign Assistance funds.
Annual Reporting Burden: Respondents: 400, annual responses: 1100; hours per response: 36; annual burden hours: 39,600
Reviewer: Jeffery Hill (202) 395–7340, Office of Management and Budget, Room 3201, New Executive Office Building, Washington, DC 20503.

Date: August 1, 1994.
Elizabeth Baltimore,
Bureau of Management, Administrative Service, Information Support Services Division.
[FR Doc. 94–19466 Filed 8–9–94; 8:45 am]
BILLING CODE 6116–01–M

DEPARTMENT OF AGRICULTURE

Office of the Secretary

Modification and Announcement of Sugar Tariff-Rate Quota Periods and Amounts

AGENCY: Office of the Secretary, USDA.
ACTION: Notice.

SUMMARY: This notice changes the current tariff-rate quota period for imports of sugars, syrups, and molasses described in additional U.S. note 3 to chapter 17 of the Harmonized Tariff Schedule of the United States (HTS), from the period October 1, 1992 through September 30, 1994 to the period October 1, 1992 through July 31, 1994, and announces a new quota period from August 1, 1994 through September 30, 1995 and a total quota amount of 1,322,978 metric tons, raw value.

EFFECTIVE DATE: August 9, 1994.

FOR FURTHER INFORMATION CONTACT: Fred Kessel, Foreign Agricultural Service, Department of Agriculture, Washington, DC 20250: Telephone: (202) 720–2916.

SUPPLEMENTARY INFORMATION: Paragraph (a)(i) of additional U.S. note 3 to chapter 17 of the HTS ("additional U.S. note 3") authorizes the Secretary of Agriculture ("the Secretary") to establish the total amount of sugars, syrups, and molasses that may be entered, or withdrawn from warehouse for consumption, under subheadings 1701.11.01, 1701.12.01, 1701.91.21, 1701.99.01, 1702.90.31, 1806.10.41, and 2106.90.11 of the HTS, during such period as shall be established by the Secretary. The Secretary must determine such total amount as will give due consideration to the interests in the U.S. sugar market of domestic producers and materially affected contracting parties to the General Agreement on Tariffs and Trade ("GATT"). Such total amount consists of (1) a base quota amount, (2) a quota

adjustment amount, and (3) an amount reserved for the importation of specialty sugars as defined by the Untied States Trade Representative. The base quota amount is allocated by the United States Trade Representative to the supplying countries and areas listed in paragraph (b)(i) of additional U.S. note 3.

Paragraph (a)(ii) of additional U.S. note 3 authorizes the Secretary to modify any quantitative limitations (including the time periods for which such limitations are applicable) which have previously been established under paragraph (a)(i), if the Secretary determines that such modification is appropriate to give due consideration to the interests in the U.S. sugar market of domestic producers and materially affected contracting parties to the GATT.

Paragraph (iv) of additional U.S. note 3 also provides that sugar entering the United States during a quota period may be charged to the previous quota period with the written approval of the Secretary. This notice will constitute such written approval.

On May 11, 1993, the Secretary of Agriculture established the current quota period of October 1, 1992 through September 30, 1994 and a total quota amount of 2,268,000 metric tons, raw value. (58 FR 28545). This quota period now is being shortened by two months, but any allocation of the current quota amount that has not been filled will be allowed to be entered during the next quota period and charged back to the previous quota period. In addition, this notice establishes a new 14-month quota period from August 1, 1994 through September 30, 1995, with a total quota amount of 1,322,978 metric tons.

Notice

Notice is hereby given that I have determined, in accordance with additional U.S. note 3, that the current tariff-rate quota period is changed from the period October 1, 1992 through September 30, 1994 to the period October 1, 1992 through July 31, 1994. Any amounts previously allocated to any country for the quota period October 1, 1992 through September 30, 1994 that have not been entered, or withdrawn from warehouse for consumption, by July 31, 1994 and that are subsequently entered, or withdrawn from warehouse for consumption will be charged to the quota period October 1, 1992 through July 31, 1994.

I have further determined, in accordance with additional U.S. note 3, that the total amount of sugars, syrups, and molasses described in subheadings 1701.11.01, 1701.12.01, 1701.91.21, 1701.99.01, 1702.90.31, 1806.10.41, and 2106.90.11 of the HTS which may be entered, or withdrawn from warehouse for consumption, during the tariff-rate quota period from August 1, 1994 through September 30, 1995 is 1,322,978 metric tons, raw value. Of the 1,322,978 metric tons, raw value, the base quota amount shall consist of 1,320,712 metric tons (including 84,680 metric tons for minimum quota allocations); 1,656 metric tons, raw value, are reserved for specialty sugars as defined by the United States Trade Representative, and 610 metric tons, raw value, are reserved as a quota adjustment amount. These amounts will be allocated to supplying countries and areas by the United States Trade Representative.

I have also determined that this modification of the previous quota period and the establishment of the new quota period and quota amount give due consideration to the interests in the United States sugar market of domestic producers and materially affected contracting parties to the General Agreement on Tariffs and Trade.

Signed at Washington, DC, on August 4, 1994.

Mike Espy,

Secretary of Agriculture.

[FR Doc. 94–19567 Filed 8–8–94; 8:45 am]

BILLING CODE 3410–10–M

Soil Conservation Service

Hayfork Creek Watershed, Trinity County, CA

AGENCY: Soil Conservation Service, USDA.

ACTION: Notice of Finding of No Significant Impact.

SUMMARY: Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969; the Council on Environmental Quality Regulations (40 CFR Part 1500); and the Soil Conservation Service Regulations (7 CFR Part 650); the Soil Conservation Service, U.S. Department of Agriculture, gives notice that an environmental impact statement is not being prepared for the Hayfork Creek Watershed, Trinity County, CA.

FOR FURTHER INFORMATION CONTACT: Hershel R. Read, State Conservationist, Soil Conservation Service, 2121–C Second Street, Suite 102, Davis, California, 95616, Phone (916) 757–8261.

SUPPLEMENTARY INFORMATION: The environmental assessment of this federally assisted action indicates that the project will not cause significant local, regional, or national impacts on the environment. As a result of these findings, Hershel R. Read, State Conservationist, has determined that the preparation and review of an environmental impact statement are not needed for this project.

A decline of salmonids (salmon and steelhead) is occurring in the watershed due in part to low water flow, high temperature, poor water quality due to high water temperatures, and a loss of habitat. Loss of riparian vegetation from grazing and clearing has reduced stream shade.

The plan involves land treatment measures and technical assistance to enhance the water quantity and quality in the Hayfork Creek Watershed for restoration of the anadromous fisheries. This will be accomplished through (1) landowner education and assistance in the conservation of ranch and water resources, (2) improving water conveyance systems and redirecting water conserved to benefit surface flows and aquatic habitat and fisheries, and (3) restoration of riparian corridors. The plan will be carried out through long-term contracts for land treatment. Project installation will be carried out in cooperation with the South Fork Trinity River Coordinated Resource Management Planning (CRMP) group.

The plan proposes to provide 5 staff years of technical assistance to work with landusers on the development of practices of irrigation water management, proper grazing use, and channel vegetation.

The Notice of a Finding of No Significant Impact (FONSI) has been forwarded to the Environmental Protection Agency and to various Federal, State and local agencies and interested parties. A limited number of copies of the FONSI are available to fill single copy requests at the above address. Basic data developed during the environmental assessment is on file and may be reviewed by contacting Romeo A. Rivera, Director, Water Resources Planning, (916) 757–8261.

No administrative action on implementation of the proposal will be taken until 30 days after the date of the publication in the **Federal Register**.

(This activity is listed in the Catalog of Federal Domestic Assistance under No. 10.904, Watershed Protection and Flood Prevention, and is subject to the provisions of Executive Order 12372, which requires intergovernmental consultation with State and local officials.)

Dated: August 4, 1994.

Henry C. Wyman,

Deputy State Conservationist.

[FR Doc. 94–19475 Filed 8–9–94; 8:45 am]

BILLING CODE 3410–16–M

DEPARTMENT OF COMMERCE

International Trade Administration

[A-570-827]

Postponement of Final Antidumping Duty Determination: Certain Cased Pencils From the People's Republic of China (PRC)

AGENCY: Import Administration, International Trade Administration, U.S. Department of Commerce.

ACTION: Notice.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Kristin M. Heim, Office of Countervailing Investigations, Import Administration, International Trade Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW, Washington, DC 20230; telephone: (202) 482-3798.

POSTPONEMENT OF FINAL DETERMINATION: On June 8, 1994, (59 FR 30911, June 16, 1994), the Department of Commerce (the Department) issued its preliminary determination in the antidumping duty investigation of certain cased pencils from the PRC.

On July 21, 1994, in accordance with section 735(a)(2)(A) of the Tariff Act of 1930, as amended, (the Act) respondents requested that the Department postpone its final determination in this investigation until 135 days after the date of publication of the preliminary determination. Under section 735(a)(2) of the Act and section 353.20(b) of the Department's regulations (19 CFR 353.20(b)) if, subsequent to an affirmative preliminary determination, the Department receives a written, substantiated request for postponement of the final determination from producers or resellers of a significant proportion of the merchandise, the Department will, absent compelling reasons for denial, grant the request. Accordingly, we are postponing our final determination in this investigation until October 21, 1994.

Public Comment

In accordance with 19 CFR 353.38, case briefs or other written comments in at least ten copies must now be submitted to the Assistant Secretary for Import Administration no later than September 19, 1994, and rebuttal briefs, no later than September 26, 1994. We have received requests for a hearing by the petitioner and respondents and, therefore, under 19 CFR 353.38(f), we will hold a public hearing to allow parties to comment on arguments raised in the case or rebuttal briefs. Tentatively, the hearing will be held on October 5, 1994, at 1:00 p.m. at the U.S. Department of Commerce, Room 3708, 14th Street and Constitution Avenue, N.W., Washington, D.C. 20230. Parties should confirm by telephone the time, date, and place of the hearing 48 hours before the scheduled time. This notice is published pursuant to section 735(d) of the Act and 19 CFR 353.20(b)(2).

Dated: August 4, 1994.

Susan G. Esserman,

Assistant Secretary for Import Administration.

[FR Doc. 94-19537 Filed 8-9-94; 8:45 am]

BILLING CODE 3510-DS-P

[A-583-822]

Termination of Antidumping Duty Investigation: Class 150 Stainless Steel Threaded Pipe Fittings From Taiwan

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Michelle Frederick or Karla Whalen, Office of Antidumping Investigations, Import Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW, Washington, DC 20230; telephone (202) 482-0186 or 482-6309, respectively.

Scope of Investigation

The products covered by this investigation are Class 150 stainless steel threaded (SST) pipe fittings, defined as cast or forged stainless steel products used to connect pipe sections with an ability to withstand normal pressure service (150 pounds per square inch (psi) at 350 degrees Fahrenheit and 300 psi at 20 to 150 degrees Fahrenheit) as well as resistance to corrosion or extreme temperatures, or prevention of metallic contamination to materials in the system. Included in the scope of this investigation are both finished and unfinished Class 150 SST pipe fittings of any size. Unfinished Class 150 SST pipe fittings are defined as those products that have been advanced after casting or forging, but which require threading and machining to finish the fittings; finished Class 150 SST pipe fittings are defined as those products that have been formed in the shape of elbows, tees, reducers, etc. and have been further advanced after casting or forging, and require no further processing to be acceptable as a finished product to the end user. Class 150 SST pipe fittings are composed of alloys including, but not limited to, 304 and 316, and are manufactured in the shape of 90-degree elbows, 45-degree elbows, street elbows, tees, crosses, couplings, reducing couplings, half-couplings, caps, square head plugs, hex head plugs, hex bushings, unions, locknuts, and welding spuds. Excluded from the scope of investigation are SST pipe fittings manufactured in the shape of nipples.

The products under investigation are currently classifiable under subheadings 7307.19.9030, 7307.19.9060, 7307.19.9080, 7307.22.1000, 7307.22.5000, and 7307.29.0090 of the *Harmonized Tariff Schedule of the United States* (HTSUS). Although the HTSUS subheadings are provided for convenience and customs purposes, our written description of the scope of this investigation is dispositive.

Termination of Investigation

On July 28, 1994, the Department of Commerce (The Department) published its final antidumping duty determination in the **Federal Register** (59 FR 33432). In a letter dated July 22, 1994, petitioners, Capital Manufacturing Co. and Alloy Stainless Products, Co., notified the Department that they were withdrawing their August 2, 1993, petition, and requested termination of the antidumping investigation. A copy of this letter is available in the public file, located in room B-099 of the main building of the Department of Commerce.

In accordance with 19 CFR 353.17(a), upon the petitioner's withdrawal of the petition, the Department may terminate an investigation after notice to all parties to the proceeding and after consultation with the International Trade Commission (ITC). Furthermore, the Department may not terminate an investigation unless it concludes that termination is in the public interest. We have notified all parties to the proceeding and consulted with the ITC. Further, because no party has objected to termination, it is reasonable to conclude that doing so will not disadvantage a U.S. industry producing a like product. Consequently, we have concluded that termination of the investigation is in the public interest. Accordingly, we are terminating the antidumping investigation of Class 150 stainless steel threaded pipe fittings from Taiwan. This action is taken pursuant to section 734(a)(1) of the Tariff Act of 1930, as amended, and 19 CFR 353.17(a).

Termination of Suspension of Liquidation

The Department of Commerce has instructed the U.S. Customs Service to terminate suspension of liquidation of entries of Class 150 stainless steel

threaded pipe fittings from Taiwan, entered or withdrawn from the warehouse for consumption, on or after March 8, 1994. All estimated antidumping duties deposited on entries of the subject merchandise shall be refunded and the bonds or other securities released at the time of liquidation.

Dated: August 2, 1994.

Susan G. Esserman,

Assistant Secretary for Import Administration.

[FR Doc. 94–19538 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–DS–M

[A–122–503]

Certain Iron Construction Castings From Canada; Preliminary Results of Antidumping Duty Administrative Review

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

ACTION: Notice of Preliminary Results of Antidumping Duty Administrative Review.

SUMMARY: In response to a request by the Municipal Castings Fair Trade Council and its individually-named members (petitioner), the Department of Commerce (the Department) has conducted an administrative review of the antidumping duty order on iron construction castings from Canada. The review covers four manufacturers/exporters of the subject merchandise to the United States during the period March 1, 1991, through February 29, 1992. For these preliminary results, we applied best information available (BIA) for all four of the manufacturers/exporters. The review indicates the existence of dumping margins during the period.

Interested parties are invited to comment on these preliminary results.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Arthur N. DuBois or Thomas F. Futtner, Office of Antidumping Compliance, International Trade Administration, U.S. Department of Commerce, Washington, D.C. 20230, telephone: (202) 482–6312/3814.

SUPPLEMENTARY INFORMATION:

Background

On March 5, 1989, the Department published in the **Federal Register** an antidumping duty order on iron construction castings from Canada (51 FR 7890). In accordance with 19 CFR 353.22(a) the petitioner requested an administrative review of four manufacturers/exporters. We published the notice of initiation on April 13, 1992 (57 FR 12797). The Department is now conducting that administrative review in accordance with section 751 of the Tariff Act of 1930, as amended (the Tariff Act).

Scope of the Review

Imports covered by this review are shipments of certain heavy and light iron construction castings. Heavy castings, are limited to manhole covers, rings, and frames, catch basin grates and frames, cleanout covers and frames used for drainage or access purposes for public utility, water, and sanitary systems, from Canada, classifiable under Harmonized Tariff Schedule (HTS) item numbers 7325.10.0010 and 7325.10.0050. Light castings are limited to valve, service, and meter boxes which are placed below ground to encase water, gas, or other valves, or water and gas meters, classifiable as light castings under HTS item numbers 8306.29.0000 and 8310.00.0000. The HTS item numbers are provided for convenience and Customs purposes only. The written description remains dispositive.

This review covers sales of certain Canadian iron construction castings by Associated Foundry (Associated), Fonderie LaPerle/LaPerle Foundry Division (LaPerle), Penticton Foundry Ltd. (Penticton), and Titan Foundry Ltd. (Titan), during the period March 1, 1991, through February 29, 1992.

Analysis

We received only one questionnaire response, and that was from LaPerle. Based on our analysis of LaPerle's response, we have determined that LaPerle is related to other manufacturers/exporters for which it did not provide information. LaPerle and its related entities meet all five criteria, in addition to ownership, that the Department considers in determining whether to collapse related parties, as laid out in *Certain Granite Products from Spain*, 53 FR 24335, 1988; *Certain Granite Products from Italy* 53 FR 27187, 1988; *Steel Wheels from Brazil*, 54 FR 8780, 1989; *Cellular Mobile Telephones and Subassemblies from Japan*, 54 FR 48011, 1989; and *Final Determinations of Sales at Less Than Fair Value: Certain Hot-Rolled Carbon Steel Flat Products, Certain Cold-Rolled Carbon Steel Flat Products, Certain Corrosion-Resistant Carbon Steel Flat Products, and Certain Cut-to-Length Carbon Steel Plate from Canada*, 58 FR 37099 (July 9, 1993). The five criteria, in addition to ownership, are as follows:

- Whether companies have interlocking boards of directors
- Whether companies have similar production processes, facilities or equipment so as to facilitate shifting of production between facilities
- Whether companies operate as separate and distinct entities
- Whether companies share marketing and sales information or offices
- Whether companies are involved in the pricing or production decisions of the other entity

Based on our analysis of these criteria, the information on the record indicates that 13 other companies, in addition to those included in the notice of initiation of administrative review, are sufficiently related to be collapsed. It is our preliminary determination LaPerle and all its related companies should be treated as a single entity. (For more information see the analysis memorandum for the preliminary results.) Therefore, in effect, we are now conducting a review of one single company, comprised of various individual components, including LaPerle.

Best Information Available

In conducting our analysis of related parties in this review, we issued three supplemental questionnaires and granted extensions for several of the responses. In spite of this, LaPerle did not provide us with enough information to adequately support its position as an independent entity. Because none of the individual components of this entity responded to our questionnaire, other than LaPerle, and because LaPerle, as the responding party, failed to submit a consolidated response, only a small fraction of the required information was provided.

Although LaPerle has provided a partial response to our questionnaire, LaPerle has not submitted a response consolidating *all* information for *all* parties related to it, and we are not able to use LaPerle's responses for purposes of this review. Therefore, we have considered LaPerle uncooperative. The application of first-tier BIA is appropriate because LaPerle has impeded the proceeding by failing to give the Department the information necessary to conduct the review and by failing to provide sufficient support that it was independent.

Therefore, in accordance with section 776(c) of the Tariff Act, and the Department's practice (*see Antifriction Bearing (Other than Tapered Roller Bearings) and Parts from France, et al.*, 58 FR 39729, July 26, 1993, we have applied first-tier BIA to the entity as a

whole. The first-tier BIA rate in this case is 9.8 percent, which is the highest of the rates for any firm in the original investigation (*see Iron Construction Castings from Canada; Amendment to Final Determination of Sales at Less than Fair Value and Amendment to Antidumping Duty Order*, 51 FR 34110, September 25, 1986).

For more information on these BIA applications to each component of the entity, see the analysis memorandum.

Preliminary Results of the Review

As a result of our review, we preliminarily determine that the following weighted-average margins exist, and have been applied based on relationship and/or failure to respond, for the period March 1, 1991 through February 29, 1992:

Manufacturer/exporter	Percent margin
Associated	9.8
LaPerle	9.8
Penticton	9.8
Titan	9.8

Interested parties may request disclosure within 5 days of the date of publication of this notice and may request a hearing within 10 days of publication. Any hearing, if requested, will be held 44 days after the date of publication or the first business day thereafter. Case briefs and/or written comments from interested parties may be submitted no later than 30 days after the date of publication. Rebuttal briefs and rebuttals to written comments, limited to issues raised in those comments, may be filed not later than 37 days after the date of publication of this notice. The Department will publish the final results of this administrative review, including the results of its analysis of issues raised when submitted in written form, or mentioned at a hearing.

The Department shall determine, and the Customs Service shall assess, antidumping duties on all appropriate entries. The Department will issue appraisement instructions on each exporter directly to the Customs Service.

Because we have completed to review for the period, March 1, 1992, through February 28, 1993, the cash deposit requirement for merchandise subject to the order will not be changed by the final results of this administrative review, except in the case of two of the entity's components. Moreover, since there were no requests for reviews of other companies which were related to LaPerle, entries of all the additional firms' merchandise have been liquidated in accordance with 19 CFR 353.22(e). Therefore, only two of the companies not included in the notice of initiation will have cash deposit rates established by this administrative review. Accordingly, for these two firms we will instruct Customs to require cash deposits of 9.8 percent, the rate assigned to the entire entity.

This notice also serves as a preliminary reminder to importers of their responsibility under 19 CFR 353.26 to file a certificate regarding the reimbursement of antidumping duties prior to liquidation of the relevant entries during this review period. Failure to comply with this requirement could result in the Secretary's presumption that reimbursement of antidumping duties occurred and the subsequent assessment of double antidumping duties.

These administrative review and this notice are in accordance with section 751(a)(1) of the Tariff Act (19 U.S.C. 1675(a)(1)) and 19 CFR 353.22(c).

Dated: July 30, 1994.

Susan G. Esserman,

Assistant Secretary for Import Administration.

[FR Doc. 94–19539 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–DS–P

[A–307–809]

Notice of Final Determination of Sales at Less Than Fair Value: Phthalic Anhydride From Venezuela

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Kimberly Hardin, Office of Antidumping Investigations, Import Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, N.W., Washington, D.C. 20230; telephone (202) 482–0371.

Final Determination

The Department of Commerce (the Department) determines that phthalic anhydride (PA) from Venezuela is being, or is likely to be, sold in the United States at less than fair value, as provided in section 735 of the Tariff Act of 1930, as amended (the Act). The estimated margins are shown in the "Suspension of Liquidation" section of this notice.

Case History

Since the publication of our affirmative preliminary determination on May 27, 1994 (58 FR 27532), the following events have occurred.

On May 27, 1994, we issued a deficiency letter to Oxidaciones Organicas, C.A. (Oxidor), respondent in this investigation, regarding its response to Section D of the antidumping questionnaire. (Section D requests information on cost of production and constructed value.)

On June 6, 1994, Oxidor informed the Department that it would no longer be participating in the investigation due to the cost and time required to fully respond to the supplemental cost questionnaire and participate in the verification.

Scope of Investigation

The product covered by this investigation is PA, an aromatic synthetic organic chemical usually produced from a primary petrochemical called orthoxylene, although it is sometimes produced from naphthalene. PA is predominately used in the production of plasticizers, unsaturated polyester resins, and alkyd resins, which in turn are generally used to produce plastics and paints. This investigation covers PA sold in either flaked or molten form.

PA is classifiable under subheading 2917.35.00 of the *Harmonized Tariff Schedule of the United States* (HTSUS). The HTSUS subheading is provided for convenience and customs purposes. Our written description of the scope of this investigation is dispositive.

Period of Investigation

The period of investigation is May 1, 1993, to October 31, 1993.

Best Information Available

As noted in the "Case History" section of this notice, Oxidor informed the Department that it would not reply to the Department's Section D deficiency letter and that it would not participate in verification. Section 776(c) of the Act provides that whenever a party refuses or is unable to produce information requested in a timely manner and in the form required, or otherwise significantly impedes an investigation, the Department shall use the best information otherwise available (BIA). We have done so in this investigation.

In assigning BIA, the Department applies a two-tiered methodology based on the degree of a respondent's cooperation. Under this methodology, the Department imposes the most adverse rate upon those respondents who refuse to cooperate or otherwise significantly impede the proceeding. *See Final Determination: Antifriction Bearings (other than Tapered Roller Bearings) and Parts thereof from the*

Federal Republic of Germany, 54 FR 18992, 19033 (1989). The Department's two-tiered methodology for assigning BIA has been upheld by the U.S. Court of Appeals for the Federal Circuit. (*See Allied-Signal* v. *U.S.*, 996 F.2d 1185 (Fed. Cir. 1993) (CAFC) (June 22, 1993); *see also Krupp Stahl AG et al.* v. *U.S.*, 822 F. Supp. 789 (CIT 1993).)

Because Oxidor refused to reply to the Department's deficiency questionnaire and refused verification, we find it has been uncooperative in this investigation. As BIA for Oxidor, we are assigning the highest margin alleged in the petition because that margin is higher than the only calculated rate in this investigation. The highest margin in the petition is 52.00 percent. (*See Initiation of Antidumping Duty Investigations: Phthalic Anhydride from Brazil, Hungary, Israel, Mexico and Venezuela* (58 FR 60847, November 18, 1993), for a description of the United States price and foreign market value used to calculate the above-mentioned margin.)

Continuation of Suspension of Liquidation

In accordance with section 735(c)(4) of the Act, we are directing the Customs Service to continue to suspend liquidation of all entries of PA from Venezuela, as defined in the "Scope of Investigation" section of this notice, that are entered, or withdrawn from warehouse, for consumption on or after the date of publication of this notice in the **Federal Register**. The Customs Service shall require a cash deposit or posting of a bond equal to the margins below on all entries of PA from Venezuela. The suspension of liquidation will remain in effect until further notice. The estimated dumping margins are as follows:

Manufacturer/producer/exporter	Margin percent
Oxidaciones Organicas, C.A.	52.00
All Others	52.00

International Trade Commission Notification

In accordance with section 735(d) of the Act, we have notified the International Trade Commission (ITC) of our determination. As our final determination is affirmative, the ITC will determine whether these imports are materially injuring, or threaten material injury to, the U.S. industry within 45 days.

If the ITC determines that material injury or threat of material injury does not exist, the proceeding will be terminated and all securities posted as a result of the suspension of liquidation will be refunded or cancelled. However, if the ITC determines that such injury does exist, we will issue an antidumping duty order directing Customs officers to assess antidumping duties on PA from Venezuela entered or withdrawn from warehouse, for consumption on or after the date of suspension of liquidation.

Notification to Interested Parties

This notice also serves as the only reminder to parties subject to administrative protective order (APO) of their responsibility covering the return or destruction of proprietary information disclosed under APO in accordance with 19 CFR 353.34(d). Failure to comply is a violation of the APO.

This determination is published pursuant to section 735(d) of the Act (19 U.S.C. 1673d(d)), and 19 CFR 353.20(a)(4).

Dated: August 3, 1994.

Susan G. Esserman,

Assistant Secretary for Import Administration.

[FR Doc. 94–19540 Filed 8–9–94; 8:45 am]

BILLING CODE 3510-DS-P

[C–307–810]

Final Negative Countervailing Duty Determination: Phthalic Anhydride From Venezuela

AGENCY: Import Administration, International Trade Administration, Department of Commerce.

EFFECTIVE DATE: August 10, 1994.

FOR FURTHER INFORMATION CONTACT: Kristin M. Heim, Office of Countervailing Investigations, Import Administration, U.S. Department of Commerce, Room B099, 14th Street and Constitution Avenue NW., Washington, DC 10130; telephone (202) 482–3798.

Final Determination

Case History

Since the publication of the preliminary negative determination in the **Federal Register** (59 FR 3842, January 27, 1994) the following events have occurred.

On March 4, 1994, we published a notice aligning this investigation with the companion antidumping duty investigation in the **Federal Register** (59 FR 10372). We conducted verification from March 22 through 25, 1994. A case brief was filed by petitioners on June 1, 1994, and a rebuttal brief was filed by Oxidor on June 10, 1994. A public hearing was not requested.

Scope of Investigation

For purposes of this investigation, phthalic anhydride ("PA") is an aromatic synthetic organic chemical usually produced from a primary petrochemical called orthoxylene, although sometimes it is produced from naphthalene. PA is predominately used in the production of plasticizers, unsaturated polyester resins, and alkyd resins, which in turn are generally used to produced plastics and paints. The subject PA is produced in two physical forms, molten and flaked.

The PA subject to this investigation is currently classified under subheading 2917.35.00 of the Harmonized Tariff Schedule of the United States (HTSUS). The HTSUS subheading is provided for convenience and customs purposes. Our written description of the scope of this investigation is dispositive.

Injury Test

On August 31, 1990, Venezuela became a contracting party to the General Agreement on Tariffs and Trade (GATT). Since a country cannot qualify as a "country under the Agreement" under section 701(b)(3) of the Tariff Act of 1930, as amended ("the Act") if it is a contracting party to the GATT, Venezuela is no longer eligible for treatment as a "country under the Agreement" within the meaning of section 701(b)(3) of the Act. However, because Venezuela is a GATT contracting party and the merchandise under investigation is non-dutiable, the ITC is required to determine whether, pursuant to section 303(a)(2) of the Act, imports of the merchandise from Venezuela materially injure, or threaten material injury to, a U.S. industry. On December 1, 1993, the ITC preliminary determined that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports of PA from Venezuela.

Petitioners

Petitioners are Aristech Chemical Corporation, BASF Corporation, Koppers Industries, Inc. and Stepan Company. Petitioners state that they represent 75 percent of the domestic PA industry.

Respondents

The Government of Venezuela ("GOV") and Oxidaciones Organicas, C.A. ("Oxidor") are respondents. While there are two producers of PA in Venezuela, Oxidor accounted for over 85 percent of exports to the United States during the POI and, hence, was selected as the sole respondent.

Analysis of Programs

For purposes of this determination, the period of investigation ("the POI") is April 1, 1992 to March 30, 1993, which corresponds to Oxidor's fiscal year.

Based upon our analysis of the petition and the responses to our questionnaires, we determine the following:

I. Program Determined Not To Be Countervailable

Preferential Pricing of Orthoxylene Feedstock

Petitioners alleged that the government-owned petrochemical company, Petroquimica de Venezuela, C.A. ("Pequiven"), is selling orthoxylene (an input product to PA) to Venezuelan producers of PA at preferential prices, thus providing a subsidy under section 771(5)(A)(ii)(II) of the Act.

In order to measure the preferential provision of goods, the Department has developed a hierarchy of benchmarks to compare with the government's price for the good. The Department's preferred benchmark is non-selective prices the government charges to the same or other users (*See, Notice of Proposed Rulemaking and Request for Public Comments*, 54 FR 23366 (May 31, 1989), Section 355.44(f)(1)) ("*Proposed Regulations*"). If there is no non-selective benchmark price, the Department normally looks to the alternative benchmarks listed in section 355.44(f)(2) of the *Proposed Regulations*. The alternative benchmarks are as follows: (1) The price charged by the same seller for a similar or related good, (2) the price charged by other sellers in the same jurisdiction for an identical good, (3) the same seller's cost of producing the good, and (4) the price paid outside the jurisdiction for an identical good.

For the preliminary determination, the Department had no information to indicate that there was a non-specific price for orthoxylene. Pequiven reported that within Venezuela it sold orthoxylene only to the two PA producers, Oxidor and Anhiven, who were charged the same price. However, we discovered at verification that Pequiven also made one sale during the POI to a non-PA producer who was charged a different price.

The Department has faced a similar situation in the past. In the *Final Countervailing Duty Determination: Aluminum Sulfate from Venezuela* 54 FR 43440 (October 25, 1989) ("*Aluminum Sulfate*"), the Department examined a government-owned company which sold to two producers of the subject merchandise, SULFORCA and FERRALCA. These two producers were charged different prices for the input product. One factor we evaluated in *Aluminum Sulfate* to determine whether the price charged to FERRALCA could be used as a benchmark for SULFORCA, was to compare the quantity and other terms of sale to the two companies. "After comparing the quantities and terms of SULFORCA's contract to the quantities and terms of FERRALCA's purchase orders, we determined that these [the quantities and terms] did not provide a basis for justifying the price difference involved." (*Aluminum Sulfate*, at 43441). Because the difference in price could not be attributed to the difference in quantity and terms, the price charged to FERRALCA was determined to be a reliable benchmark.

Consistent with the analysis performed in *Aluminum Sulfate*, we have examined the quantities and terms of Pequiven's sales to the non-PA producer and compared them to the quantities and terms of Pequiven's sales to Oxidor. We have concluded that Pequiven's price to the non-PA producer would not be a reliable benchmark price because there was only one sale in the POI and the sale involved too small a quantity to be comparable to the sales made to Oxidor and Anhiven. In addition, there is no other evidence on the record indicating that this price could serve as a proper benchmark. Therefore, we have determined that the price charged to the non-PA producer cannot serve as an appropriate benchmark. Due to the proprietary nature of the quantities and terms of these sales, we cannot address them in this notice; however there is a proprietary concurrence memorandum on the record that explains the basis of our determination (*see*, Concurrence Memorandum, August 3, 1994).

Since we have concluded that we cannot use the government's price for the same good as our benchmark, we have evaluated the alternative benchmarks in our hierarchy. The first alternative in the hierarchy is the price charged by the same seller for a similar or related good. Consistent with our preliminary determination, we have determined that we cannot use the first alternative benchmark because Pequiven does not sell any of the products identified on the record as being similar to orthoxylene (*i.e.*, paraxylene, metaxylene and mixed-xylene).

The second alternative listed in the *Proposed Regulations* is the price charged within the jurisdiction by other sellers for an identical good or service. As stated in *Carbon Black from Mexico: Preliminary Results of Countervailing Duty Administrative Review* (51 FR 13269, April 18, 1986), "[t]hese other sellers may include private sellers within the jurisdiction or foreign sellers selling into the jurisdiction * * *" Pequiven is the only domestic producer/seller of orthoxylene in Venezuela. However, orthoxylene was imported into Venezuela during the POI.

In the preliminary determination, we used U.S. export statistics on shipments of orthoxylene to Venezuela during the period 1992–1993. From these statistics, we used the information on the one entry that occurred during the POI to calculate a benchmark price, since this was "a price charged within the jurisdiction by other sellers for an identical good." Based on our comparison of Pequiven's price for orthoxylene with the U.S. export price (adjusted for freight and insurance), we preliminarily determined that the Pequiven's price to Oxidor was non-preferential.

We have examined this transaction carefully for purposes of our final determination to determine whether it can serve as a proper benchmark for sales of orthoxylene by Pequiven. First, we have considered the quantity involved and the terms of sale. Based on a comparison of the U.S. export to Pequiven's monthly sales to the two PA producers, we have determined that this sale is within the range of quantities purchased from Pequiven each month and, therefore, involves sufficiently large quantities to serve as an appropriate benchmark.

Second, with respect to the terms of sale, petitioners argued that the prices reported in the U.S. export statistics are spot prices, whereas Pequiven's prices are on a contract basis. Petitioners stated that this fact should preclude the Department from using the U.S. export data as a benchmark since they are incomparable to Pequiven's prices. Respondents countered that, while Pequiven did have a contract with its customers, the terms of "contract" and "spot" sales are different in Venezuela than in the United States. Specifically, they argued that contract needs and obligations of secured quantity are much greater in the U.S. than in Venezuela. Because the Venezuelan market is so small, respondents took the position that a spot price is a more appropriate benchmark. Both parties have submitted world market prices for orthoxylene as reported by the industry publications of several private reporting agencies to support their arguments.

Based on the information provided by both parties, we determined that there is a consistent difference between contract and spot prices as reported by the private reporting agencies. Given that the degree of difference is consistent throughout the POI, we believe it is possible to adjust the U.S. export spot price to make it comparable to a contract price. To calculate the adjustment, we averaged the difference between monthly contract and spot prices as reported by the three reporting services, and added the average spread for April, 1992 (the month of the single importation) to the U.S. export price.

In addition, because this import into Venezuela was reported on a FAS basis, we added an amount for ocean freight and insurance from the United States to Venezuela. The amount for ocean freight and insurance was obtained from an independent shipping company (see memorandum from case analyst to the file, January 14, 1994).

We then compared the adjusted U.S. export price to the price Pequiven charged for orthoxylene in the month that orthoxylene was exported from the United States. Based on this comparison, we found that Pequiven's price was greater than the price of imported U.S. orthoxylene.

As a final check on the validity of the single importation as a benchmark, we averaged U.S. export prices (adjusted for freight and insurance as well as the difference between the spot and contract prices) for the three months in which we had data (one within the POI and two outside of the POI). For the two exports occurring outside of the POI, we added the average spread between spot and contract prices for the POI to the export prices because monthly data on the difference between spot and contract prices outside of the POI was not available. We compared the average of the adjusted U.S. export prices to the average price Pequiven charged in the same three months and found that Pequiven's average price was greater than the average price of the imports from the United States.

Therefore, we find that the GOV, through Pequiven, did not provide orthoxylene to PA producers at preferential rates. Accordingly, we determine that no benefits which constitute bounties or grants within the meaning of the countervailing duty law are being provided to manufacturers, producers, or exporters of PA from Venezuela.

II. Programs Determined not to be Used

We determine that producers or exporters in Venezuela of the subject merchandise did not receive benefits during the POI for exports of the subject merchandise to the United States under the following programs:

A. *FINEXPO Preferential Short-Term Export Loans*
B. *FINEXPO Preferential Long-Term Export Loans*
C. *Excessive Tariff Drawback*
D. *Preferential Tax Exemptions Under the 1966 Income Tax Law*

Because we find that the GOV did not provide orthoxylene at preferential rates and all other alleged programs were not used, we determine that no benefits which constitute bounties or grants within the meaning of the countervailing duty law are being provided to manufacturers, producers, or exporters of PA from Venezuela.

Comments

All written comments submitted by the interested parties in this investigation either have been previously addressed in this notice or relate to alternative benchmarks that are lower in the preferentiality hierarchy than the one we used to reach our final determination.

Verification

In accordance with section 776(b) of the Act, we verified the information used in making our final determination. We followed standard verification procedures, including meeting with government and company officials, examination of relevant accounting records, and examination of original source documents. Our verification results are outlined in detail in the public versions of the verification reports, which are on file in the Central Records Unit (Room B–099 of the Main Commerce Building).

ITC Notification

In accordance with section 705(d) of the Act, we will notify the ITC of our determination. Since we have determined that no bounties or grants are being provided to manufacturers, producers or exporters of PA in Venezuela, the investigation will be terminated upon publication of this notice in the Federal Register. Hence, the ITC is not required to make a final injury determination with respect to this countervailing duty proceeding.

Return or Destruction of Proprietary Information

This notice serves as the only reminder to parties subject to Administrative Protective Order (APO) of their responsibility concerning the return or destruction of proprietary information disclosed under APO in accordance with 19 CFR 355.34(d). Failure to comply is a violation of the APO.

This determination is published pursuant to section 705(d) of the Act (19 U.S.C. 1671d(d)).

Dated: August 3, 1994.

Susan G. Esserman,

Assistant Secretary for Import Administration.

[FR Doc. 94–19541 Filed 8–9–94; 8:45 am]

BILLING CODE 3510-DS-P

National Institute of Standards and Technology

Visting Committee on Advanced Technology

AGENCY: National Institute of Standards and Technology, Department of Commerce.

ACTION: Notice of partially closed meeting.

SUMMARY: Pursuant to the Federal Advisory Committee Act, 5 U.S.C. app. 2, notice is hereby given that the National Institute of Standards and Technology's Visiting Committee on Advanced Technology (NIST) will meet on Tuesday, September 13, 1994, from 8:30 a.m. to 5:00 p.m. The Visiting Committee on Advanced Technology is composed of nine members appointed by the Director of the National Institute of Standards and Technology who are eminent in such fields as business, research, new product development, engineering, labor, education, management consulting, environment, and international relations. The purpose of this meeting is to review and make recommendations regarding general policy for the Institute, its organization, its budget, and its programs within the framework of applicable national policies as set forth by the President and the Congress. The agenda will include presentations on NIST programs, the Advanced Technology Program: progress report and program definition, the Manufacturing Extension Partnerships, laboratory tours, and a discussion of the Institute budget.

Discussions on the NIST budget, including funding of the Applied Technology Program and the Manufacturing Extension Partnership and the staffing of management positions at NIST scheduled to begin at 4:00 p.m. and to end at 5:00 p.m. on September 13, 1994, will be closed.

DATES: The meeting will convene September 13, 1994, at 8:30 a.m. and will adjourn at 5:00 p.m. on September 13, 1994.

ADDRESSES: The meeting will be held in Lecture Room A, Administration

Building, at the National Institute of Standards and Technology, Gaithersburg, Maryland.

FOR FURTHER INFORMATION CONTACT: Chris E. Kuyatt, Visiting Committee Executive Director, National Institute of Standards and Technology, Gaithersburg, Maryland 20899, telephone number (301) 975–6090.

SUPPLEMENTARY INFORMATION: The Assistant Secretary for Administration, with the concurrence of the General Counsel, formally determined on August 2, 1994, that portions of the meeting of the Visiting Committee on Advanced Technology which involve discussion of proposed funding of the ATP and the MEP Programs may be closed in accordance with 5 U.S.C. 552b(c)(9)(B), because those portions of the meetings will divulge matters the premature disclosure of which would be likely to significantly frustrate implementation of proposed agency actions; and that portions of meetings which involve discussion of the staffing of management and other positions at NIST may be closed in accordance with 5 U.S.C. 552b(c)(6), because divulging information discussed in those portions of the meeting is likely to reveal information of a personal nature where disclosure would constitute a clearly unwarranted invasion of personal privacy.

Dated: August 4, 1994.

Samuel Kramer,

Associate Director.

[FR Doc. 94–19542 Filed 8–9–94; 8:45 am]

BILLING CODE 3510-13-M

National Oceanic and Atmospheric Administration

Final Certification for the Relocation of the San Francisco Weather Service Forecast Office

SUMMARY: On March 28, 1994 (59 FR 14387), the National Weather Service (NWS) published its proposed certification for the relocation of the San Francisco Weather Service Forecast Office, Redwood City, to Monterey, California, as required by the Weather Service Modernization Act, 15 U.S.C. 313n, (the Act). In accordance with the Act, the NWS provided the public a 60-day period in which to comment. After considering the comments received and consulting with the Modernization Transition Committee, the NWS has determined that this action will not result in any degradation of service to the affected area and has so certified. In accordance with the Act, the Secretary of Commerce has transmitted this certification to Congress, and the NWS is now publishing the final certification together with a summary of the supporting documentation.

EFFECTIVE DATE: August 10 1994.

ADDRESSES: Requests for copies of the final relocation certification package should be sent to Senator Raygor, Wx21, 1325 East-West Highway, Silver Spring, MD 20910.

FOR FURTHER INFORMATION CONTACT: Senator Raygor at 301–713–0391.

SUPPLEMENTARY INFORMATION: The National Weather Service (NWS) is relocating its forecast office for Northern California from Redwood City to Monterey. This is the first modernization action which requires a certification of no degradation of service under the Act.

Based on the recommendation of the relevant Meteorologist-in-Charge, on June 24, 1994, the Assistant Administrator of the NWS certified that this relocation will not result in any degradation of service to the affected area as required by section 706 of the Act. On July 21, 1994, the Secretary of Commerce transmitted this certification to Congress. The NWS is now completing the certification requirements by publishing the final relocation Certification in the **Federal Register**.

Published with this Notice are (1) the Certification by the Assistant Administrator of the Weather Service; (2) a memorandum from Norman C. Hoffmann, Meteorologist-in-Charge, WSFO San Francisco, endorsed by Dr. Thomas D. Potter, Director, Western Region, which recommends certification and summarizes the basis for the recommendation. This memorandum also sets forth the supporting documentation required by the Act, NWS regulations and certification criteria at 15 CFR part 946. However, this supporting documentation generally is too voluminous to publish with this Notice and can be obtained through the contact listed in **ADDRESSES**. This material includes:

(1) A description of local weather characteristics and weather-related concerns which affect the weather services provided within the service area;

(2) A detailed comparison of the services provided within the service area and the services to be provided after such action;

(3) A description of any recent or expected modernization of National Weather Service operation which will enhance services in the service area;

(4) An identification of any area within California which would not receive coverage (at an elevation of 10,000 feet) by the next generation weather radar network;

(5) The evidence, based upon operational demonstration of modernized NWS operations, which was considered in reaching the conclusion that no degradation in service will result from such action including the relocation checklist and evidence from similar moves;

(6) A copy of the letter appointing the liaison officer; and

(7) The recommendation of the Modernization Transition Committee (the Committee), made at its June 22, 1994, meeting, that supports the certification. (The Committee did not issue any report evaluating the proposed certification as is its prerogative under section 706(b)(6) of the Act.)

The memorandum recommending certification considered and responded to all public comments received on the proposed certification during the 60-day comment period. These comments and responses are set forth here for reference:

Comment: Both of the negative comments received centered on the belief that, if the Weather Forecast Office (WFO) is not located in the San Francisco Bay area, services to that area could be degraded. Related to this point, these commentors focussed on the distance of the move and argued that services would be degraded because the forecasters would not be able to "see" the conditions in the San Francisco Bay area.

Response: First of all, these comments ignore the fact that this WSFO is responsible for weather services to all of northern California, not just the San Francisco Bay area. The NWS is convinced that the relocation to Monterey will enhance weather forecasting for the entire northern California service area. The logical conclusion of this comment is that each WFO must be located in close proximity to the population center of its particular service area. Such a result obviously is not reasonable.

Furthermore, there will be no degradation of weather services to the San Francisco Bay Area itself. The services are dependant on a variety of information which includes surface observations, weather radars, upper air soundings, weather satellite data, spotter networks, aircraft reports, and numerical guidance from the National Meteorological Center. The collection of this data and information is dependant on communications, not the exact location of that office, and will be equally available to the Monterey office as it was in Redwood City.

One commentor's concern, that the loss of personal contact between NWS personnel and the media and agencies might degrade the overall quality of services, also is unfounded. The commentor is correct that "the NWS depends heavily on the media to get its warnings out." However, the primary means by which NWS warnings are disseminated is by telecommunications systems such as NOAA Weather Wire, not by personal contacts. The commentor claims that television reporters in the San Francisco area "regularly visit and report from the office in Redwood City during weather emergencies, and that appearances on camera by NWS forecasters add immediacy to developing weather stories and allow the public to receive information directly from the source." There are network television affiliates in the Monterey area that could provide on camera interviews with the forecasting staff from the office in Monterey. With modern day telecommunications, these interviews can easily be broadcast over television stations located in the San Francisco Bay area.

Contact with cooperating and user agencies such as FEMA and emergency managers in the San Francisco Bay area will continue even if the WSFO is relocated to Monterey. There is no reason to assume these contacts, that are currently done face-to-face, will be less effective in the future if they are done mostly via telephone, as is done now for users in the WSFO's service area that are outside the immediate San Francisco Bay area. Moreover, contact with cooperators and users will be enhanced by the addition of a dedicated Warning Coordination Meteorologist to the staff at Monterey.

Comment: The two commentors opposed to the relocation also argued that, if the WFO is not located in the San Francisco Bay area, services would be degraded because of the climatological differences.

Response: This comment is related to that above but requires some additional elaboration. There are numerous climatological zones located in central and northern California. A primary goal of the NWS modernization is to enable each future WFO to provide consistent weather services to its entire area of responsibility which includes the numerous climatological regimes. To accomplish this the NWS will employ advanced computers which will greatly improve the numerical guidance available to forecasters. Advanced weather satellites will make higher resolution imagery available allowing forecasters to see in detail what is occurring over their area of responsibility. The number and frequency of surface observations will be increased through the deployment of ASOS. A national network of WSR–88D Doppler radars is already halfway completed. This will provide forecasters in Monterey the ability to view the atmosphere in more detail than ever before possible. Not just over the San Francisco Bay area, but over all of northern and central California. Any attempt to compare services as they exist today with those that will be available in the future is a disservice to all the users of weather services in northern and central California.

Comment: The two commentors opposed to the relocation believe that a number of experienced forecasters will elect to retire instead of relocate and the result will be degradation of services.

Response: Clearly, the ability of the NWS to relocate an office (or to take a number of other modernization actions) cannot be contingent upon the number of employees that happen to retire during the process. Planning for these actions begins years in advance whereas the actual number of employees who will retire is not known for certain until the day the move takes place. Therefore, the NWS has to be prepared to deal with whatever vacancies occur in the same way it deals with vacancies at any office which occur all the time, when employees retire or transfer to other jobs. In this situation, even in the worst case scenario, a loss of 7 employees, the potential for any short term effects is negligible in view of the fact that the office will retain 4 out of 5 lead forecasters; that it has already recruited 3 experienced forecasters and has identified 2 additional experienced forecasters that could be detailed to Monterey during the transition; and that the office will be able to field experienced personnel on each shift.

Comment: Three commentors stated that with the new technologies the proposed relocation of the NWS forecast office would not degrade services that, in fact, they expect an enhancement of weather services. Two of the commentors stated that collocating with the Naval Post Graduate School would be beneficial to the NWS and create new opportunities for collaborative research activities.

Response: The NWS agrees. Improved warning and forecast capabilities are expected to result from this collocation. Improved access to Fleet Numerical Oceanography Center data sources including satellite imagery from the Defense Meteorological Sateliite System as well as global, regional, and wave numerical forecast models will enable improved weather services.

Comment: One commentor believed that the relocation would be more costly.

Response: The issue of cost associated with the office move is not relevant to certification. However, an Economic Analysis (EA) was completed on May 20, 1992, by the Special Engineering Program Office which concluded that the relocation to Monterey was the most economical. In July, 1993, the Department of Commerce Office of Inspector General validated that EA and determined the Monterey location to be the most economical to the Government.

Dated: August 5, 1994.

Louis J. Boezi,

Deputy Assistant Administrator for Modernization.

[FR Doc. 94–19519 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–12–M

National Oceanic and Atmospheric Administration

[I.D. 071494D]

Marine Mammals

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Issuance of scientific research permit No. 934 (P281C).

SUMMARY: Notice is hereby given that Mr. S. Jonathon Stern, of the Marine Mammal Research Program, Texas A&M University, Galveston, Texas has been issued a permit to take minke whales (*Balaenoptera acutorostrata*), blue whales (*B. musculus*), fin whales (*B. physalus*), sei whales (*B. borealis*), humpback whales (*Megaptera novaeangliae*), gray whales (*Eschrictius robustus*), and killer whales (*Orcinus orca*) for purposes of scientific research.

ADDRESSES: The permit and related documents are available for review upon written request or by appointment in the following offices:

Permits Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Room 13130, Silver Spring, MD 20910 (301/713–2289);

Director, Southwest Region, 501 West Ocean Boulevard, Suite 4200, Long Beach, CA 90802–4213 (310/980–4001);

Director, Northwest Region, 7600 Sand Point Way, NE., BIN C15700, Bldg. 1, Seattle, WA 98115–0070 (206/526–6150); and,

Director, Alaska Region, P.O. Box 21688, Juneau, AK 99802–1668 (907/586–7221).

SUPPLEMENTARY INFORMATION: On May 4, 1994, notice was published in the

Federal Register (59 FR 23054) that a request for a scientific research permit to photo-identify and biopsy dart minke whales (*Balaenoptera acutorostrata*), blue whales (*B. musculus*), fin whales (B. *physalus*), sei whales (*B. borealis*), humpback whales (*Megaptera novaeangliae*), gray whales (*Eschrictius robustus*), and killer whales (*Orcinus orca*) had been submitted by the above-named individual. The requested permit has been issued under the authority of the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361 *et seq.*) and the Regulations Governing the Taking and Importing of Marine Mammals (50 CFR part 216), the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), and the regulations governing endangered species permits 50 CFR parts 217–222).

Dated: August 3, 1994.

William W. Fox, Jr.,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 94–19432 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–22–F

COMMITTEE FOR THE IMPLEMENTATION OF TEXTILE AGREEMENTS

Announcement of Import Restraint Limits for Certain Cotton and Man-Made Fiber Textile Products Produced or Manufactured in Nepal

August 4, 1994.

AGENCY: Committee for the Implementation of Textile Agreements (CITA).

ACTION: Issuing a directive to the Commissioner of Customs establishing limits.

EFFECTIVE DATE: August 11, 1994.

FOR FURTHER INFORMATION CONTACT: Jennifer Tallarico, International Trade Specialist, Office of Textiles and Apparel, U.S. Department of Commerce, (202) 482–4212. For information on the quota status of these limits, refer to the Quota Status Reports posted on the bulletin boards of each Customs port or call (202) 927–5850. For information on embargoes and quota re-openings, call (202) 482–3715.

SUPPLEMENTARY INFORMATION:

Authority: Executive Order 11651 of March 3, 1972, as amended; section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854).

The Governments of the United States and Nepal have agreed to extend their current Bilateral Textile Agreement, effected by exchange of notes dated May 30 and June 1, 1986, as amended and extended, for four consecutive one-year periods, beginning on January 1, 1994 and extending through December 31, 1997.

In the letter published below, the Chairman of CITA directs the Commissioner of Customs to establish limits for the period beginning on January 1, 1994 and extending through December 31, 1994.

A description of the textile and apparel categories in terms of HTS numbers is available in the CORRELATION: Textile and Apparel Categories with the Harmonized Tariff Schedule of the United States (see Federal Register notice 58 FR 62645, published on November 29, 1993).

The letter to the Commissioner of Customs and the actions taken pursuant to it are not designed to implement all of the provisions of the bilateral agreement, but are designed to assist only in the implementation of certain of its provisions.

Rita D. Hayes,

Chairman, Committee for the Implementation of Textile Agreements.

Committee for the Implementation of Textile Agreements

August 4, 1994.

Commissioner of Customs,
Department of the Treasury, Washington, DC 20229.

Dear Commissioner: Under the terms of section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854); pursuant to the Bilateral Textile Agreement, effected by exchange of notes dated May 30 and June 1, 1986, as amended and extended, between the Governments of the United States and Nepal; and in accordance with the provisions of Executive Order 11651 of March 3, 1972, as amended, you are directed to prohibit, effective on August 11, 1994, entry into the United States for consumption and withdrawal from warehouse for consumption of cotton and man-made fiber textile products in the following categories, produced or manufactured in Nepal and exported during the twelve-month period beginning on January 1, 1994 and extending through December 31, 1994, in excess of the following levels of restraint:

Category	Twelve-month restraint limit
340	267,948 dozen.
341	860,680 dozen.
342	130,647 dozen.
347/348	603,541 dozen.
640	134,857 dozen.
641	304,069 dozen.

Imports charged to these category limits for the period January 1, 1993 through December 31, 1993 shall be charged against those levels of restraint to the extent of any unfilled balances. In the event the limits established for that period have been exhausted by previous entries, such goods shall be subject to the levels set forth in this directive.

In carrying out the above directions, the Commissioner of Customs should construe entry into the United States for consumption to include entry for consumption into the Commonwealth of Puerto Rico.

The Committee for the Implementation of Textile Agreements has determined that these actions fall within the foreign affairs exception of the rulemaking provisions of 5 U.S.C. 553(a)(1).

Sincerely,

Rita D. Hayes,

Chairman, Committee for the Implementation of Textile Agreements.

[FR Doc. 94–19473 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–DR–F

Amendment and Establishment of Import Restraint Limits and Restraint Periods for Certain Cotton and Man-Made Fiber Textile Products Produced or Manufactured in Qatar

August 4, 1994.

AGENCY: Committee for the Implementation of Textile Agreements (CITA).

ACTION: Issuing a directive to the Commissioner of Customs amending and establishing import limits and restraint periods.

EFFECTIVE DATE: August 12, 1994.

FOR FURTHER INFORMATION CONTACT: Jennifer Tallarico, International Trade Specialist, Office of Textiles and Apparel, U.S. Department of Commerce, (202) 482–4212. For information on the quota status of these limits, refer to the Quota Status Reports posted on the bulletin boards of each Customs port or call (202) 927–5850. For information on embargoes and quota re-openings, call (202) 482–3715.

SUPPLEMENTARY INFORMATION:

Authority: Executive Order 11651 of March 3, 1972, as amended; section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854).

In a Memorandum of Understanding (MOU) dated June 28, 1994 between the Governments of the United States and the State of Qatar, agreement was reached to establish limits for cotton and man-made fiber textile products in Categories 340/640, 341/641 and 347/348.

In the letter published below, the Chairman of CITA directs the Commissioner of Customs to amend the current limits and restraint periods for Categories 340/640, 341/641 and 347/348 to begin on January 1, 1994 and extend through December 31, 1994. Also, limits are being established for these categories for the periods June 30, 1993 through December 31, 1993 (Categories 340/640); September 24,

1993 through December 31, 1993 (Categories 341/641); and July 28, 1993 through December 31, 1993 (Categories 347/348).

A description of the textile and apparel categories in terms of HTS numbers is available in the CORRELATION: Textile and Apparel Categories with the Harmonized Tariff Schedule of the United States (see **Federal Register** notice 58 FR 62645, published on November 29, 1993). Also see 58 FR 33933, published on June 22, 1993; 58 FR 39797, pubished on July 26, 1993; and 58 FR 48040, published on September 14, 1993.

The letter to the Commissioner of Customs and the actions taken pursuant to it are not designed to implement all of the provisions of the MOU, but are designed to assist only in the implementation of certain of its provisions.

Rita D. Hayes,

Chairman, Committee for the Implementation of Textile Agreements.

Committee for the Implementation of Textile Agreements

August 4, 1994.

Commissioner of Customs,
Department of the Treasury, Washington, DC 20229.

Dear Commissioner: This directive amends, but does not cancel, the directives issued to you on June 16, 1993, September 8, 1993 and July 21, 1993, by the Chairman, Committee for the Implementation of Textile Agreements. Those directives concern imports of cotton and man-made fiber textile products in Categories 340/640, 341/641 and 347/348, respectively, produced or manufactured in Qatar and exported during the twelve-month periods June 30, 1993 through June 29, 1994 (Categories 340/640); September 24, 1993 through September 23, 1994 (341/641); and July 28, 1993 through July 27, 1994 (Categories 347/348).

Effective on August 12, 1994, you are directed to amend the aforementioned restraint periods for Categories 340/640, 341/641 and 347/348 to begin on January 1, 1994 and extend through December 31, 1994. Pursuant to the Memorandum of Understanding dated June 28, 1994 between the Governments of the United States and the State of Qatar, the levels for the 1994 restraint period shall be as follows:

Category	Twelve-month restraint limit [1]
340/640	325,000 dozen.
341/641	150,000 dozen.
347/348	370,000 dozen.

[1] The limits have not been adjusted to account for any imports exported after December 31, 1993.

Under the terms of section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854); pursuant to the Memorandum of Understanding dated June 28, 1994 between the Governments of the United States and the State of Qatar; and in accordance with the provisions of Executive Order 11651 of March 3, 1972, as amended, you are directed to prohibit, effective on August 12, 1994, entry into the United States for consumption and withdrawal from warehouse for consumption of cotton and man-made fiber textile products in the following categories, produced or manufactured in the State of Qatar and exported during the periods June 30, 1993 through December 31, 1993 for Categories 340/640; September 24, 1993 through December 31, 1993 for Categories 341/641; and July 28, 1993 through December 31, 1993 for Categories 347/348, in excess of the following levels of restraint:

Category	Restraint limit [1]
340/640	151,874 dozen.
341/641	28,776 dozen.
347/348	148,748 dozen.

[1] The limits have not been adjusted to account for any imports exported after June 29, 1993 (Categories 340/640); September 23, 1993 (Categories 341/641); and July 27, 1993 (Categories 347/348).

Goods exported in excess of the limits established for the periods June 30, 1993 through December 31, 1993; September 24, 1993 through December 31, 1993; and July 28, 1993 through December 31, 1993 shall be charged to the period January 1, 1994 through December 31, 1994.

You are directed to deduct the following amounts from the charges made to the following categories for the January 1, 1994 through December 31, 1994 period. These same amounts shall be charged to the corresponding categories for the periods June 30, 1993 through December 31, 1993 (Categories 340/640); September 24, 1993 through December 31, 1993 (Categories 341/641); and July 28, 1993 through December 31, 1993 (Categories 347/348).

Category	Amount to be deducted/charged
340	151,246 dozen.
341	18,599 dozen.
347	36,000 dozen.
348	60,418 dozen.
640	628 dozen.
641	–0–.

In carrying out the above directions, the Commissioner of Customs should construe entry into the United States for consumption to include entry for consumption into the Commonwealth of Puerto Rico.

The Committee for the Implementation of Textile Agreements has determined that these actions fall within the foreign affairs exception of the rulemaking provisions of 5 U.S.C. 553(a)(1).

Sincerely,

Rita D. Hayes,

Chairman, Committee for the Implementation of Textile Agreements.

[FR Doc. 94–19474 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–DR–F

Anouncing the Availability of the 1990 Annex A Import Data to the Agreement on Textiles and Clothing

August 5, 1994.

AGENCY: Committee for the Implementation of Textile Agreements (CITA).

ACTION: Announcing the availability of the 1990 Annex A Import Data.

FOR FURTHER INFORMATION CONTACT: Keith Daly, Office of Textiles and Apparel, U.S. Department of Commerce, (202) 482–1450.

SUPPLEMENTARY INFORMATION:

Authority: Executive Order 11651 of March 3, 1972, as amended; section 204 of the Agricultural Act of 1956, as amended (7 U.S.C. 1854).

The Committee for the Implementation of Textile Agreements (CITA) is making available to the public the 1990 Annex A (to the Agreement on Textiles and Clothing) U.S. Import Data by Harmonized Tariff Number.

This document is a draft working document. CITA therefore reserves the right to revise and modify such document. Any subsequent modifications will be published in the **Federal Register**.

Interested parties should call Keith Daly at (202) 482–1450 to request this information.

See 59 FR 26212, published on May 19, 1994; 59 FR 29781, published on June 9, 1994; and 59 FR 36428, published on July 18, 1994.

Rita D. Hayes,

Chairman, Committee for the Implementation of Textile Agreements.

[FR Doc. 94–19536 Filed 8–9–94; 8:45 am]

BILLING CODE 3510–DR–F

DEPARTMENT OF DEFENSE

Government-Owned Inventions; Availability for Licensing

AGENCY: Department of the Navy, DOD.

ACTION: Notice of availability of inventions for licensing.

SUMMARY: The inventions listed below are assigned to the United States Government as represented by the Secretary of the Navy and are made available for licensing by the Department of the Navy.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $3.00 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical

Information Service (NTIS), Springfield, Virginia 22161 for $6.95 each ($10.95 outside North American Continent). Requests for copies of patent applications must include the patent application serial number. Claims are deleted from the copies of patent applications sold to avoid premature disclosure.

FOR FURTHER INFORMATION CONTACT: Mr. R.J. Erickson, Staff Patent Attorney, Office of Naval Research (Code OOCC), Arlington, Virginia 22217–5660, telephone (703) 696–4001.

Patent 5,189,590: CLOSED-LOOP MULTI-SENSOR CONTROL SYSTEM AND METHOD; filed 25 July 1990; patented 23 February 1993.

Patent 5,218,576: UNDERWATER TRANSDUCER; filed 22 May 1992; patented June 8, 1993.

Patent 5,230,848: METHOD OF THERMOCHEMICALLY TREATING SILICON CARBIDE FIBERS DERIVED FROM POLYMERS; filed 18 February 1992; patented 27 July 1993.

Patent 5,234,758: NONLINEAR OPTICAL COMPOSITES OF METAL CLUSTER LADEN POLYMERS; filed 3 June 1992; patented 10 August 1993.

Patent 5,237,018: INTERPENETRATING POLYMER NETWORK ACOUSTIC DAMPING MATERIAL; filed 28 August 1991; patented 17 August 1993.

Patent 5,242,150: ROTARY HYDRAULIC SERVO AND THROTTLE VALVE; filed September 30, 1992; patented September 7, 1993.

Patent 5,247,894: PRO-SUBMARINE MOBILE DECOY; filed 28 February 1962; patented 28 September 1993.

Patent 5,248,114: ADAPTIVE AUTOPILOT; filed 20 June 1974; patented 28 September 1993.

Patent 5,250,954: COLOR-CODED RADAR PLAN POSITION INDICATOR; filed 28 June 1991; patented 5 October 1993.

Patent 5,251,848: SPACE SHUTTLE WHEEL ACCELERATION SYSTEM; filed 14 May 1992; patented 12 October 1993.

Patent 5,253,216: SONAR COUNTERMEASURE; filed 28 December 1962; patented 12 October 1993.

Patent 5,255,564: APPARATUS FOR THE DISCRIMINATION OF CHEMICAL LIQUIDS VIA SOUND SPEED MEASUREMENTS; filed August 22, 1991; patented October 26, 1993.

Patent 5,257,324: ZERO-TIME-DELAY VIDEO PROCESSOR CIRCUIT; filed 1 November 1991; patented 26 October 1993.

Patent 5,257,556: TORQUE APPLICATION TECHNIQUE AND APPARATUS; filed 14 December 1992; patented 2 November 1993.

Patent 5,258,937: ARBITRARY WAVEFORM GENERATOR; filed 13 April 1992; patented 2 November 1993.

Patent 5,259,061: FABRICATION AND PHASE TUNING OF AN OPTICAL WAVEGUIDE DEVICE; filed 16 November 1992; patented 2 November 1993.

Patent 5,260,414: SPIROBISLACTONE ACRYLATE POLYMERS; filed 25 June 1992; patented 9 November 1993.

Patent 5,261,151: MULTIFILAMENTARY SUPERCONDUCTING CABLE AND A METHOD OF MANUFACTURING IT; filed 7 July 1992; patented 16 November 1993.

Patent 5,261,300: WRENCH FOR INSTALLING AN ELECTRICAL CONNECTOR; filed 26 October 1992; patented 16 November 1993.

Patent 5,261,344: SELF-CONTAINED SYSTEM FOR SHIP PROTECTION AGAINST MOORED CONTACT MINES; filed 21 November 1991; patented 16 November 1993.

Patent 5,261,616: MULTI-LAYERED TRANSLATED RIB-STIFFENED COMPOSITE HOLLOW CYLINDER ASSEMBLY; filed 18 February 1992; patented 16 November 1993.

Patent 5,262,362: COATINGS FOR SIO2 OPTICAL FIBERS; filed 22 June 1992; patented 16 November 1993.

Patent 5,262,514: POLYMER FROM DIIMIDO-DI-PHTHALONITRILE; filed 12 March 1992; patented 16 November 1993.

Patent 5,262,544: 5,7–DINITRO–5,7–DIAZA–1,3–DIOXABICYCLO(3:3:0) OCTAN–2–ONE; filed 10 May 1993; patented 16 November 1993.

Patent 5,263,433: HYBRID HYDROFOIL STRUT LEADING EDGE EXTENSION; filed 17 August 1992; patented 23 November 1993.

Patent 5,264,511: POLYMERS OF BIS (ETHYNYLSTYRYL) BENZENE AND RELATED MONOMERS; filed 30 June 1992; patented 23 November 1993.

Patent 5,264,693: MICROELECTRONIC PHOTOMULTIPLIER DEVICE WITH INTEGRATED CIRCUITRY; filed 1 July 1992; patented 23 November 1993.

Patent 5,264,722: NANOCHANNEL GLASS MATRIX USED IN MAKING MESOSCOPIC STRUCTURES; filed 12 June 1992; patented 23 November 1993.

Patent 5,265,069: BLANKET ARRAY ADHESION SYSTEM; filed 27 April 1979; patented 23 November 1993.

Patent 5,266,099: METHOD OF PRODUCTION OF CLOSED ALL SPHERICAL POROSITY IN SPRAY FORMED METALS; filed 11 August 1992; patented 30 November 1993.

Patent 5,266,155: METHOD FOR MAKING A SYMMETRICAL LAYERED THIN FILM EDGE FIELD-EMITTER-ARRAY; filed 30 November 1992; patented 30 November 1993.

Patent 5,266,532: METHOD FOR LASER-ASSISTED SILICON ETCHING USING HALOCARBON AMBIENTS; filed 12 December 1991; patented 30 November 1993.

Patent 5,266,675: ENERGETIC POLYMER; filed 13 July 1992; patented 30 November 1993.

Patent 5,267,070: UNDERWATER IR COMMUNICATION SYSTEM; filed 5 May 1992; patented 30 November 1993.

Patent 5,267,220: TARGET SURVEILLANCE AND DESTRUCT SYSTEM; filed 18 April 1969; patented 30 November 1993.

Patent 5,267,254: COLOR CENTER LASER WITH TRANSVERSE AUXILIARY ILLUMINATION; filed 15 April 1992; patented 30 November 1993.

Patent 5,268,304: METHOD OF DETERMINING THE CONCENTRATION OF A CHEMICAL INTEREST IN A SOLUTION; filed 7 March 1991; patented 7 December 1993.

Patent 5,268,875: ACOUSTIC DECOY; filed 11 May 1967; patented 7 December 1993.

Patent 5,268,920: SYSTEM FOR END-PUMPING A SOLID STATE LASER USING A LARGE APERTURE LASER DIODE BAR; filed 6 November 1991; patented 7 December 1993.

Patent 5,269,890: ELECTROCHEMICAL PROCESS AND PRODUCT THEREFROM; filed 31 December 1992; patented 14 December 1993.

Patent 5,270,252: METHOD OF FORMING PLATINUM AND PLATINUM SILICIDE SCHOTTKY CONTACTS ON BETA-SILICON CARBIDE; filed 28 July 1992; patented 14 December 1993.

Patent 5,270,705: TELEMETRY DATA WORD SELECTOR AND PROCESSOR; filed 20 September 1991; patented 14 December 1993.

Patent 5,270,853: METHOD AND APPARATUS FOR IMAGING AN OBJECT IN OR THROUGH A SCATTERING MEDIUM BY USING MULTIPLE-WAVE MIXING; filed 30 November 1992; patented 14 December 1993.

Patent 5,271,076: METHOD PROVIDING OPTIMUM OPTICAL TRANS ALIGNMENT IN A PASSIVE MULTI-CHANNEL FIBER OPTIC ROTARY

JOINT; filed 5 October 1992; patented 14 December 1993.

Patent 5,271,328: PENDULUM BASED POWER SUPPLY FOR PROJECTILES; filed 22 January 1993; patented 21 December 1993.

Patent 5,271,332: MODIFIED CHANNEL EFFECT FOR SOLID EXPLOSIVE DETONATION WAVES; filed 2 October 1992; patented 21 December 1993.

Patent 5,272,131: METHOD FOR FORMING ALIGNED SUPERCONDUCTING BI- SR-CA-CU-O; filed 21 March 1990; patented 21 December 1993.

Patent 5,272,237: CARBORANE-(SILOXANE OR SILANE)-UNSATURATED HYDROCARBON BASED POLYMERS; filed 30 November 1992; patented 21 December 1993.

Patent 5,272,476: DATA ACQUISITION SYSTEM HAVING NOVEL, LOW POWER CIRCUIT FOR TIME-DIVISION MULTIPLEXING ARRAY SIGNALS; filed 4 April 1991; patented 21 December 1993.

Patent 5,272,708: TWO-MICRON MODELOCKED LASER SYSTEM; filed 30 October 1992; patented 21 December 1993.

Patent 5,272,722: LOW LEVEL SERIAL TRANSCEIVER; filed 26 April 1991; patented 21 December 1993.

Patent 5,272,908: FLAME POSITION ULTRASONIC INTERFEROMETER; filed 6 February 1990; patented 28 December 1993.

Patent 5,273,465: MAGNETOHYDRODYNAMIC BOUNDARY LAYER CONTROL SYSTEM; filed 11 February 1993; patented 28 December 1993.

Patent 5,274,103: 1,3,4–OXADIAZOLES CONTAINING THE PENTAFLUOROTHIO (SF5) GROUP; filed 10 May 1993; patented 28 December 1993.

Patent 5,274,361: LASER OPTICAL MOUSE; filed 15 August 1991; patented 28 December 1993.

Patent 5,274,775: PROCESS CONTROL APPARATUS FOR EXECUTING PROGRAM INSTRUCTIONS; filed 22 January 1991; patented 28 December 1993.

Patent 5,275,168: TIME-GATED IMAGING THROUGH DENSE-SCATTERING MATERIALS USING STIMULATED RAMAN AMPLIFICATION; filed 31 March 1992; patented 4 January 1994.

Patent 5,275,966: LOW TEMPERATURE PROCESS FOR PRODUCING ANTIMONY- CONTAINING SEMICONDUCTOR MATERIALS; filed 8 July 1991; patented 4 January 1994.

Patent 5,276,171: 2–AZIDO–2,2–DIFLOROETHANOL; filed 10 May 1993; patented 4 January 1994.

Patent 5,276,319: METHOD AND DEVICE FOR IMPROVED IR DETECTION WITH COMPENSATION FOR INDIVIDUAL DETECTOR RESPONSE; filed 21 April 1992; patented 4 January 1994.

Patent 5,276,618: DOORWAY TRANSIT NAVIGATIONAL REFERENCING SYSTEM; filed 26 February 1992; patented 4 January 1994.

Patent 5,276,658: ACOUSTIC WINDOW; filed 19 November 1992; patented 4 January 1994.

Patent 5,276,695: MULTIFREQUENCY, RAPIDLY SEQUENCED OR SIMULTANEOUS TUNABLE LASER; filed 26 October 1992; patented 4 January 1994.

Patent 5,278,352: GROUNDING RING FOR GROUND ADAPTERS; filed 3 July 1991; patented 11 January 1994.

Patent 5,278,498: SURFACE CONFORMING FLEXIBLE EDDY CURRENT PROBE FOR SCANNING VARYING SURFACE CONTOURS; filed 6 November 1992; patented 11 January 1994.

Patent 5,278,966: TOROIDAL COMPUTER MEMORY FOR SERIAL AND PARALLEL PROCESSORS; filed 26 June 1990; patented 11 January 1994.

Patent 5,279,149: DIELECTRIC VISCOMETER INCLUDING FIXED AND VARIABLE CELLS; filed 22 June 1992; patented 18 January 1994.

Patent 5,279,247: SUBMARINE MAST FAIRING BEARING CONFIGURATION; filed 28 June 1991; patented 18 January 1993.

Patent 5,280,287: CODED IDENTIFICATION AND POSITIONING SYSTEM; filed 30 June 1992; patented 18 January 1994.

Patent 5,280,335: FIBER-OPTIC TESTING SYSTEM HAVING A DETECTION CIRCUIT; filed 26 May 1992; patented 18 January 1994.

Patent 5,280,761: COMBINED BULBOUS BOW AND SONAR DOME FOR A VESSEL; filed 17 August 1992; patented 25 January 1994.

Patent 5,281,274: ATOMIC LAYER EPITAXY (ALE) APPARATUS FOR GROWING THIN FILMS OF ELEMENTAL SEMIDONDUCTORS; filed 4 February 1993; patented 25 January 1994.

Patent 5,281,672: METHOD OF LOWERING THE REACTION EXOTHERM IN THERMALLY POLYMERIZED ACETYLENE TERMINATED RESINS; filed 10 September 1992; patented 25 January 1994.

Patent 5,281,735: DISILANOATES OF DISILACYCLOHEXADIENES; filed 20 July 1993; patented 25 January 1994.

Patent 5,281,894: DUAL CAVITY FOR A DUAL FREQUENCY GYROTRON; filed 28 September 1990; patented 25 January 1994.

Patent 5,282,492: DUAL VALVE PLATE TWO-WAY PRESSURE RELIEF VALVE; filed 23 February 1993; patented 1 February 1994.

Patent 5,282,876: INVERSE FLASH STEAM PURIFIER; filed 31 July 1990; patented 1 February 1994.

Patent 5,282,936: DECOMPOSITION OF HALOGENATED AND POLYHALOGENATED ORGANIC MATERIALS BY ELECTRIFIED MICROHETEROGENEOUS CATALYSIS; filed 21 January 1992; patented 1 February 1994.

Patent 5,283,138: LIGHTWEIGHT ZINC ELECTRODE; filed 27 July 1993; patented 1 February 1994.

Patent 5,283,530: ELECTRON ACCELERATION SYSTEM; filed 12 September 1991; patented 1 February 1994.

Patent 5,284,061: INTEGRAL PRESSURE SENSOR; filed 21 September 1992; patented 8 February 1994.

Patent 5,284,106: SUPERCONDUCTING ELECTROMAGNETIC TORPEDO LAUNCHER; filed 11 February 1993; patented 8 February 1994.

Patent 5,284,697: COMPOSITE STRUCTURES HAVING ORGANIC MATRICES AND DUPLEX ZINC/CERAMIC FIRE BARRIERS; filed 13 August 1992; patented 8 February 1994.

Patent 5,285,067: MICROWAVE DETECTION OF A SUPERCONDUCTING INFRARED SENSOR; filed 5 March 1992; patented 8 February 1994.

Patent 5,285,467: COMPACT, EFFICIENT, SCALABLE NEODYMIUM LASER CO-DOPED WITH ACTIVATOR IONS AND PUMPED BY VISIBLE LASER DIODES; filed 22 February 1993; patented 8 February 1994.

Patent 5,285,633: COOLANT SUBSYSTEM FOR A TORPEDO PROPULSION SYSTEM; filed 23 March 1993; patented 15 February 1994.

Patent 5,286,176: ELECTROMAGNETIC PUMP; filed 6 May 1993; patented 15 February 1994.

Patent 5,286,803: COUMARIN DYES AND SIDE-CHAIN COUMARIN DYE-SUBSTITUTED POLYMERS WHICH EXHIBIT NONLINEAR OPTICAL PROPERTIES; filed 26 November 1990; patented 15 February 1994.

Patent 5,287,378: HOLMIUM QUASI-TWO LEVEL LASER; filed 30 December 1992; patented 15 February 1994.

Patent 5,287,727: FIXTURE FOR PRESSURE TESTING SIGHT GLASSES; filed 19 June 1992; patented 22 February 1994.

Patent 5,288,114: ATTACHMENT METHODOLOGY FOR COMPOSITE CYLINDER ASSEMBLY: filed 7 April 1992; patented 22 February 1994.

Patent 5,288,205: INDIA-STABILIZED ZIRCONIA COATING FOR COMPOSITES; filed 26 September 1990; patented 22 February 1994.

Patent 5,288,371: OXIDATION OF ORGANIC MATERIALS BY ELECTRIFIED MICROHETEROGENEOUS CATALYSIS; filed 21 January 1992; patented 22 February 1994.

Patent 5,289,194: COMBINER FOR TWO DIMENSIONAL ADAPTIVE INTERFERENCE SUPPRESSION SYSTEM; filed 25 June 1992; patented 22 February 1994.

Patent 5,289,304: VARIABLE RATE TRANSFER OF OPTICAL INFORMATION; filed 24 March 1993; patented 22 February 1994.

Patent 5,289,482: INTRACAVITY-PUMPED 2.1 μM HO^{3}+:YAG LASER: filed 30 December 1992; patented 22 February 1994.

Patent 5,290,599: POLYURETHANE SELF-PRIMING TOPCOATS; filed 16 April 1993; patented 1 March 1994.

Patent 5,290,839: POLYURETHANE SELF-PRIMING TOPCOATS; filed 25 August 1992; patented 1 March 1994.

Patent 5,290,840: POLYURETHANE SELF-PRIMING TOPCOATS; filed 29 September 1992; patented 1 March 1994.

Patent 5,290,960: DIACETYLENIC PHOSPHOLIPIDS CONTAINING HETEROATOM NEAR DIACETYLENIC FUNCTIONALITY FOR MODULATION OF MICROSTRUCTURE MORPHOLOGY; filed 25 February 1993; patented 1 March 1994.

Patent 5,291,194; APPARATUS FOR INTERCONNECTING AN UNDERWATER VEHICLE AND A FREE-FLOATING POD; filed 12 April 1993; patented 1 March 1994.

Patent 5,291,266: DEPOLARIZED LIGHT SOURCE FOR FIBER OPTIC SENSORS; filed 13 December 1991; patented 1 March 1994.

Patent 5,291,459: SIGNAL PROCESSOR HAVING MULTIPLE DISTRIBUTED DATA BUFFERS; filed 7 May 1993; patented 1 March 1994.

Patent 5,291,611: MODULAR SIGNAL PROCESSING UNIT; filed 23 April 1991; patented 1 March 1994.

Patent 5,291,731: TORPEDO WITH EXTERNAL COMBUSTION ENGINE HAVING AN EXPANSION CHAMBER; filed 23 March 1993; patented 8 March 1994.

Patent 5,291,784: FLUID DYNAMIC LINEAR ACCELEROMETER; filed 17 May 1993; patented 8 March 1994.

Patent 5,292,779: CARBORANE-(SILANE OR SILOXANE)-UNSATURATED HYDROCARBON BASED THERMOSETTING POLYMERS; filed 17 December 1992; filed 8 March 1994.

Patent 5,292,851: SUBSTITUTED SILYL-TERMINATED COMPOUNDS AND POLYMERS THEREOF; filed 10 August 1992; patented 8 March 1994.

Patent 5,292,854: SYNTHESIS OF PHTHALONITRILE RESINS CONTAINING ETHER AND IMIDE LINKAGES WITH AROMATIC DIAMINE CURING AGENT; filed 30 July 1992; patented 8 March 1994.

Patent 5,292,927: FLUORINATED RESINS WITH LOW DIELECTRIC CONSTANT; filed 26 February 1992; patented 8 March 1994.

Patent 5,292,951: 1,3,4-OXADIAZOLES CONTAINING THE PENTAFLUOROTHIO (SF5) GROUP; filed 10 September 1993; patented 8 March 1994.

Patent 5,293,218: INTERFEROMETRIC JFTOT TUBE DEPOSIT MEASURING DEVICE; filed 30 June 1992; patented 8 March 1994.

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Patent 5,294,240: METHOD OF FORMING WAVEGUIDES WITH ION EXCHANGE OF HALOGEN IONS; filed 1 September 1992; patented 15 March 1994.

Patent 5,294,268: METHOD FOR MAKING A NON-MAGNETIC ALLOY; filed 2 December 1992; patented 15 March 1994.

Patent 5,294,557: IMPLANTING IMPURITIES IN SEMICONDUCTORS AND SEMICONDUCTOR IMPLANTED WITH IMPURITIES; filed 26 August 1991; patented 15 March 1994.

Patent 5,294,936: RADAR SECTOR BLANKER; filed 7 June 1993; patented 15 March 1994.

Patent 5,295,528: CENTRIFUGAL CASTING OF REINFORCED ARTICLES; filed 17 May 1991; patented 22 March 1994.

Patent 5,296,106: ELECTRIFIED MICROHETEROGENEOUS CATALYSIS; filed 21 January 1992; patented 22 March 1994.

Patent 5,296,155: STRATIFIED CARRIER ELECTROVISCOUS FLUIDS AND APPARATUS; filed 19 September 1990; patented 22 March 1994.

Patent 5,296,313: LOW DISCHARGE RATE ALKALINE BATTERY; filed 16 February 1993; patented 22 March 1994.

Patent 5,296,429: PREPARATION OF AN ELECTROCATALYTIC CATHODE FOR AN ALUMINUM-HYDROGEN PEROXIDE BATTERY; filed 21 August 1992; patented 22 March 1994.

Patent 5,296,749: SUPERCONDUCTOR MICROELECTRONIC DEVICES AND CIRCUITS AND A METHOD OF FABRICATING THEREFOR; filed 5 February 1992; patented 22 March 1994.

Patent 5,296,865: MTI COMPATIBLE COHERENT SIDELOBE CANCELLER; filed 23 August 1974; patented 22 March 1994.

Patent 5,297,227: DISENGAGABLE ADAPTER FOR AN OPTICAL FIBER CONNECTION; filed 18 March 1993; patented 22 March 1994.

Patent 5,298,106: METHOD OF DOPING SINGLE CRYSTAL DIAMOND FOR ELECTRONIC DEVICES; filed 8 July 1991; patented 29 March 1994.

Patent 5,298,197: CHEMILUMINESCENT MICROEMULSIONS; filed 6 October 1988; patented 29 March 1994.

Patent 5,298,291: EPOXY-FUNCTIONAL FLUOROPOLYOL POLYACRYLATE COATING OF OPTICAL FIBERS; filed 19 March 1993; patented 29 March 1994.

Patent 5,298,484: HIGH TC COPPER-OXIDE SUPERCONDUCTORS COMPRISING TL-SR-CA-CU-O; filed 31 March 1992; patented 29 March 1994.

Patent 5,299,449: LIQUID FLOW REACTOR AND METHOD OF USING; filed 30 April 1992; patented 5 April 1994.

Patent 5,300,443: METHOD FOR FABRICATING COMPLEMENTARY ENHANCEMENT AND DEPLETION MODE FIELD EFFECT TRANSISTORS ON A SINGLE SUBSTRATE; filed 30 June 1993; patented 5 April 1994.

Patent 5,301,051: MULTI-CHANNEL, COVERT, NON-LINE-OF-SIGHT UV COMMUNICATION; filed 8 March 1988; patented 5 April 1994.

Patent 5,301,127: HIGH SPEED METHOD FOR PREDICTING RADIO-WAVE PROPAGATION; filed 12 February 1992; patented 5 April 1994.

Patent 5,301,166: REMOTE CONTROL COMMAND SYSTEM; filed 29 June 1967; patented 5 April 1994.

Patent 5,301,219: UNINTERRUPTED, ENHANCED-RATE EVENT

SEQUENCER WITH MIXED-SPEED COUNTER MODULES; filed 18 December 1991; patented 5 April 1994.

Patent 5,301,904: CANOPY BREAKING DEVICE; filed 17 March 1993; patented 12 April 1994.

Patent 5,303,314: METHOD AND APPARATUS FOR POLARIZATION-MAINTAINING FIBER OPTICAL AMPLIFICIATION WITH ORTHOGONAL POLARIZATION OUTPUT; filed 15 March 1993; patented 12 April 1994.

Patent 5,303,710: APPARATUS FOR IMAGING AN OBJECT IN OR THROUGH A SCATTERING MEDIUM USING COHERENT ANTI-STOKES RAMAN SCATTERING; filed 3 November 1992; patented 19 April 1994.

Patent 5,304,257: TRIVALENT CHROMIUM CONVERSION COATINGS FOR ALUMINUM; filed 27 September 1993; patented 19 April 1994.

Patent 5,304,625: PHOSPHAZENE-CONTAINING AMINE AS CURING AGENT FOR PHTHALONITRILE-BASED POLYMER; filed 19 February 1993; patented 19 April 1994.

Patent 5,305,075: MAGNETOSTRICTIVE TRANSDUCER SYSTEM HAVING A THREE DUAL-STRIP FIBER OPTIC MAGNETOSTRICTIVE TRANSDUCERS BONDED INTO A SINGLE FIBER MACH-ZEHNDER INTERFEROMETER; filed 29 January 1993; patented 19 April 1994.

Patent 5,305,414: LOW LOSS GLASS AND OPTICAL FIBERS THEREFROM; filed 3 August 1992; patented 19 April 1994.

Patent 5,306,661: METHOD OF MAKING A SEMICONDUCTOR DEVICE USING A NANOCHANNEL GLASS MATRIX; filed 29 April 1993; patented 26 April 1994.

Patent 5,306,836: VOLATILE CVD PRECURSORS BASED ON COPPER ALKOXIDES AND MIXED GROUP IIA-COPPER ALKOXIDES; filed 10 March 1993; patented 26 April 1994

Patent 5,306,904: MULTILAYER MICROELECTRONIC PHOTOMULTIPLIER DEVICE WITH A STACKED SERIES OF DYNODE AND INSULATING LAYERS; filed 16 February 1993; patented 26 April 1994.

Patent 5,306,927: HIGH CURRENT AMPLIFIER UTILIZING A JOSEPHSON JUNCTION SCHOTTKY DIODE THREE TERMINAL DEVICE; filed 15 August 1991; patented 26 April 1994.

Patent 5,307,271: REFLEXIVE TELEOPERATED CONTROL SYSTEM FOR A REMOTELY CONTROLLED VEHICLE; filed 28 September 1990; patented 26 April 1994.

Patent 5,307,358: WAVELENGTH DISPERSIVE GAIN ELEMENT FOR A TUNABLE LASER; filed 20 May 1993; patented 26 April 1994.

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Patent 5,309,007: JUNCTION FIELD EFFECT TRANSISTOR WITH LATERAL GATE VOLTAGE SWING (GVS-JFET); filed 30 September 1991; patented 3 May 1994.

Patent 5,310,989: METHOD FOR LASER-ASSISTED ETCHING OF III-V AND III-VI SEMICONDUCTOR COMPOUNDS USING CHLOROFLUOROCARBON AMBIENTS; filed 21 January 1992; patented 10 May 1994.

Patent 5,310,990: METHOD OF LASER PROCESSING FERROELECTRIC MATERIALS; filed 3 June 1991; patented 10 May 1994.

Patent 5,311,067: HIGH PERFORMANCE PULSE GENERATOR; filed 15 June 1992; patented 10 May 1994.

Patent 5,311,098: INTERFERENCE PHOTOCATHODE; filed 26 May 1992; patented 10 May 1994.

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Patent 5,314,802: LIGHT EMISSION OR ABSORBANCE-BASED BINDING ASSAYS; filed 9 April 1992; patented 24 May 1994.

Patent 5,314,866: FORMATION OF SUPERCONDUCTING BI-SR-CA-CU-O FILMS BY ORGANOMETALLIC CHEMICAL VAPOR DEPOSITION; filed 16 May 1989; patented 24 May 1994.

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Patent 5,318,801: SUBSTRATE TEMPERATURE CONTROL APPARATUS AND TECHNIQUE FOR CVD REACTORS; filed 18 May 1993; patented 7 June 1994.

Patent 5,319,440: FIBER OPTIC GYROSCOPES WITH DEPOLARIZED LIGHT; filed 25 August 1992; patented 7 June 1994.

Patent 5,319,652: SUPER LUMINESCENT LIGHT SOURCE; filed 29 January 1993; patented 7 June 1994.

Patent 5,320,978: SELECTIVE AREA PLATINUM FILM DEPOSITION; filed 30 July 1993; patented 14 June 1994.

Patent 5,321,333: TORSIONAL SHEAR WAVE TRANSDUCER; filed 6 April 1993; patented 14 June 1994.

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Patent 5,325,011: TRANSDUCERS AND METHOD FOR MAKING SAME; filed 9 June 1993; patented 28 June 1994.

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Patent Application 08/033,223: DISENGAGABLE ADAPTER FOR AN OPTICAL CONNECTOR; filed 18 March 1993.

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Patent Application 08/053,763: ICE PENETRATING BUOY; filed 15 April 1993.

Patent Application 08/054,497: POLYURETHANE SELF-PRIMING TOPCOATS; filed 16 April 1993.

Patent Application 08/063,844: FLUID DYNAMIC LINEAR ACCELEROMETER; filed 17 May 1993.

Patent Application 08/069,816: REAL-TIME DISTRIBUTED DATA BASE LOCKING MANAGER; filed 1 June 1993.

Patent Application 08/074,514: DATA STRUCTURE EXTRACTION, CONVERSION AND DISPLAY TOOL; filed 10 June 1993.

Patent Application 08/080,155: CONTROL SYSTEM FOR TRACKING NONLINEAR SYSTEMS; filed 23 June 1993.

Patent Application 08/083,403: ON DEMAND, NON-HALON, FIRE

EXTINGUISHING SYSTEMS; filed June 23, 1993.

Patent Application 08/083,404: AUTOMATIC DATA SEGMENTATION MODULE FOR TARGET MOTION ANALYSIS APPLICATIONS; filed 23 June 1993.

Patent Application 08/083,952: METHOD OF PRODUCING A SILICON MEMBRANE USING A SILICON ALLOY ETCH STOP LAYER; filed 30 June 1993.

Patent Application 08/089,913: UNDERWATER SOUND SOURCE WITH REMOTE CONTROLLED ACTUATOR; filed 12 July 1993.

Patent Application 08/089,915: FLEXIBLE DRIVE SHAFT COUPLING; filed 12 July 1993.

Patent Application 08/096,088: SHIP'S ATTITUDE DATA CONVERTER; filed 21 July 1993.

Patent Application 08/098,989: SYSTEM FOR CONDITIONING AN ELECTRON BEAM FOR IMPROVED FREE-ELECTRON LASER OPERATION; filed 29 July 1993.

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Patent Application 08/100,798: SAG COMPENSATED VIBRATION ISOLATION MOUNT; filed 2 August 1993.

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Patent Application 08/102,924: FIBER OPTIC CONTINUOUS TRUE TIME-DELAY MODULATOR; filed 6 August 1993.

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Patent Application 08/128,187: HIGH REPETITION RATE, MODE LOCKED, FIGURE EIGHT LASER WITH EXTRACAVITY FEEDBACK; filed 29 September 1993.

Patent Application 08/129,725: MULTI-LINE PASSIVE FIBER OPTIC SLIP RING; filed 30 September 1993.

Patent Application 08/129,728: ENCAPSULATED DRY ELECTROLYTE COMPOSITION FOR TIME RELEASE INTO A SOLUTE; filed 30 September 1993.

Patent Application 08/129,729: RECONFIGURABLE AIRCRAFT STICK CONTROL; filed 29 September 1993.

Patent Application 08/130,405: SNAP LOAD SUPPRESSION SYSTEM; filed 1 October 1993.

Patent Application 08/134,191: DEVICE FOR DAMPENING VIBRATORY MOTION; filed 6 October 1993.

Patent Application 08/134,192: TORQUE-BALANCED EXTENDABLE FIBER OPTIC CABLE; filed 6 October 1993.

Patent Application 08/136,637: UNDERWATER ACOUSTIC INTENSITY PROBE; filed 12 October 1993.

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Patent Application 08/147,237: METHOD AND APPARATUS FOR LOCATING AN ACOUSTIC SOURCE; filed 22 October 1993.

Patent Application 08/148,310: INFLATABLE PARTITION FOR FIGHTING MINE FIRES; filed 8 November 1993.

Patent Application 08/151,396: PASSIVE, MULTI-CHANNEL FIBER OPTIC ROTARY JOINT ASSEMBLY; filed 8 November 1993.

Patent Application 08/151,678: MICRO-ELECTRON DEFLECTOR; filed 15 November 1993.

Patent Application 08/151,693: OXIDATION RESISTANT COPPER; filed 15 November 1993.

Patent Application 08/151,695: ELECTRONIC PRIMER IGNITION SYSTEM; filed 15 November 1993.

Patent Application 08/152,635: METHOD FOR MEASUREMENT OF DAMPING COEFFICIENTS; filed 27 October 1993.

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Patent Application 08/153,449: STATOR FOR DISC TYPE ELECTRIC MOTOR; filed 17 November 1993.

Patent Application 08/154,419: SPECTRALLY-SELECTIVE FIBER TRANSMISSION FILTER SYSTEM; filed 19 November 1993.

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Patent Application 08/155,606: VIBRATION DAMPENER AND

METHOD FOR MAKING SAME; filed 22 November 1993.

Patent Application 08/155,888: POLYNUCLEOTIDE VACCINE PROTECTIVE AGAINST MALARIA, METHODS OF PROTECTION AND VECTOR FOR DELIVERING POLYNUCLEOTIDE VACCINES; filed 23 November 1993.

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Patent Application 07/954,521: OPTICAL FIBER ELECTROMAGNETIC RADIATION DETECTOR; filed 30 September 1992.

Patent Application 07/991,680: EFFICIENT CHEMISTRY FOR SELECTIVE MODIFICATION AND METALLIZATION OF SUBSTRATES; filed 16 December 1992.

Dated: August 4, 1994.

Lewis T. Booker, Jr.,

LCDR, JAGC, USN, Federal Register Liaison Officer.

[FR Doc. 94–19505 Filed 8–9–94; 8:45 am]

BILLING CODE 3810–AE–P

Office of the Secretary of Defense

Per Diem, Travel and Transportation Allowance Committee

AGENCY: Office of the Secretary, DoD.

ACTION: Publication of Changes in Per Diem Rates.

SUMMARY: The Per Diem, Travel and Transportation Allowance Committee is publishing Civilian Personnel Per Diem Bulletin Number 177. This bulletin lists changes in per diem rates prescribed for U.S. Government employees for official travel in Alaska, Hawaii, Puerto Rico, the Northern Mariana Islands and Possessions of the United States. Bulletin Number 177 is being published in the **Federal Register** to assure that travelers are paid per diem at the most current rates.

EFFECTIVE DATE: 1 August 1994.

SUPPLEMENTARY INFORMATION: This document gives notice of changes in per diem rates prescribed by the Per Diem Travel and Transportation Allowance Committee for non-foreign areas outside the continental United States. Distribution of Civilian Personnel Per Diem Bulletins by mail was discontinued effective 1 June 1979. Per Diem Bulletins published periodically in the **Federal Register** now constitute the only notification of change in per diem rates to agencies and establishments outside the Department of Defense.

The text of the Bulletin follows:

BILLING CODE 5000–04–M

MAXIMUM PER DIEM RATES FOR OFFICIAL TRAVEL IN ALASKA, HAWAII, THE COMMONWEALTHS OF PUERTO RICO AND THE NORTHERN MARIANA ISLANDS AND POSSESSIONS OF THE UNITED STATES BY FEDERAL GOVERNMENT CIVILIAN EMPLOYEES

LOCALITY	MAXIMUM LODGING AMOUNT (A) +	M&IE RATE (B)	= MAXIMUM PER DIEM RATE (C)	EFFECTIVE DATE
ALASKA:				
ADAK 5/	$ 10	$ 34	$ 44	10-01-91
ANAKTUVUK PASS	83	57	140	12-01-90
ANCHORAGE				
06-01--09-15	147	64	211	06-01-94
09-16--05-31	81	57	138	05-01-94
ANIAK	73	36	109	07-01-91
ATQASUK	129	86	215	12-01-90
BARROW	105	83	188	11-01-93
BETHEL	76	67	143	02-01-94
BETTLES	65	45	110	12-01-90
COLD BAY	110	54	164	07-01-93
COLDFOOT	95	59	154	10-01-92
CORDOVA	60	81	141	01-01-94
CRAIG	67	35	102	07-01-91
DENALI NATIONAL PARK	113	68	181	05-01-94
DILLINGHAM	85	64	149	11-01-93
DUTCH HARBOR-UNALASKA	113	67	180	05-01-92
EIELSON AFB				
05-15--09-15	106	59	165	05-15-94
09-16--05-14	68	55	123	01-01-94
ELMENDORF AFB				
06-01--09-15	147	64	211	06-01-94
09-16--05-31	81	57	138	05-01-94
EMMONAK	62	61	123	10-01-93
FAIRBANKS				
05-15--09-15	106	59	165	05-15-94
09-16--05-14	68	55	123	01-01-94
FALSE PASS	80	37	117	06-01-91
FT. RICHARDSON				
06-01--09-15	147	64	211	06-01-94
09-16--05-31	81	57	138	05-01-94
FT. WAINWRIGHT				
05-15--09-15	106	59	165	05-15-94
09-16--05-14	68	55	123	01-01-94
HOMER				
05-01--09-30	71	60	131	05-01-94
10-01--04-30	60	58	118	02-01-94
JUNEAU				
04-30--09-14	92	74	166	04-30-94
09-15--04-29	78	73	151	01-01-94

MAXIMUM PER DIEM RATES FOR OFFICIAL TRAVEL IN ALASKA, HAWAII, THE COMMONWEALTHS OF PUERTO RICO AND THE NORTHERN MARIANA ISLANDS AND POSSESSIONS OF THE UNITED STATES BY FEDERAL GOVERNMENT CIVILIAN EMPLOYEES

LOCALITY	MAXIMUM LODGING AMOUNT (A) +	M&IE RATE (B) =	MAXIMUM PER DIEM RATE (C)	EFFECTIVE DATE
ALASKA: (CONT'D)				
KATMAI NATIONAL PARK	$ 89	$ 59	$148	12-01-90
KENAI-SOLDOTNA				
04-02--09-30	104	74	178	04-02-94
10-01--04-01	67	71	138	01-01-94
KETCHIKAN				
04-01--09-30	82	71	153	04-01-94
10-01--03-31	69	70	139	01-01-94
KING SALMON 3/	75	59	134	12-01-90
KLAWOCK	75	36	111	07-01-91
KODIAK	74	65	139	01-01-94
KOTZEBUE	133	87	220	05-01-93
KUPARUK OILFIELD	75	52	127	12-01-90
METLAKATLA				
06-01--10-01	95	58	153	06-01-94
10-02--05-31	72	56	128	02-01-94
MURPHY DOME				
05-15--09-15	106	59	165	05-15-94
09-16--05-14	68	55	123	01-01-94
NELSON LAGOON	102	39	141	06-01-91
NOATAK	133	87	220	05-01-93
NOME	71	67	138	10-01-93
NOORVIK	133	87	220	05-01-93
PETERSBURG				
04-16--10-14	77	56	133	05-01-94
10-15--04-15	72	56	128	10-15-94
POINT HOPE	99	61	160	12-01-90
POINT LAY 6/	106	73	179	12-01-90
PRUDHOE BAY-DEADHORSE	73	60	133	11-01-93
SAND POINT	64	67	131	08-01-94
SEWARD				
05-01--09-30	90	65	155	05-01-94
10-01--04-30	52	62	114	01-01-94
SHUNGNAK	133	87	220	05-01-93
SITKA-MT. EDGECOMBE	79	71	150	01-01-94
SKAGWAY				
04-01--09-30	82	71	153	04-01-94
10-01--03-31	69	70	139	01-01-94
SPRUCE CAPE	74	65	139	01-01-94
ST. GEORGE	100	39	139	06-01-91

MAXIMUM PER DIEM RATES FOR OFFICIAL TRAVEL IN ALASKA, HAWAII, THE COMMONWEALTHS OF PUERTO RICO AND THE NORTHERN MARIANA ISLANDS AND POSSESSIONS OF THE UNITED STATES BY FEDERAL GOVERNMENT CIVILIAN EMPLOYEES

LOCALITY	MAXIMUM LODGING AMOUNT (A) +	M&IE RATE (B)	= MAXIMUM PER DIEM RATE (C)	EFFECTIVE DATE
ALASKA: (CONT'D)				
ST. MARY'S	$ 77	$ 59	$136	06-01-93
ST. PAUL ISLAND	62	63	125	10-01-93
TANANA	71	67	138	10-01-93
TOK				
05-02--09-30	60	58	118	05-02-94
10-01--05-01	51	57	108	01-01-94
UMIAT	97	63	160	12-01-90
VALDEZ				
05-01--09-14	95	61	156	05-01-94
09-15--04-30	79	59	138	01-01-94
WAINWRIGHT	90	75	165	12-01-90
WALKER LAKE	82	54	136	12-01-90
WRANGELL				
04-01--09-30	82	71	153	04-01-94
10-01--03-31	69	70	139	01-01-94
YAKUTAT	77	58	135	11-01-93
OTHER 3, 4, 6/	63	48	111	01-01-93
AMERICAN SAMOA	60	47	107	08-01-94
GUAM	155	75	230	05-01-93
HAWAII:				
ISLAND OF HAWAII: HILO	73	61	134	06-01-93
ISLAND OF HAWAII: OTHER	80	71	151	06-01-93
ISLAND OF KAUAI				
04-01--11-30	110	75	185	06-01-93
12-01--03-31	122	76	198	12-01-93
ISLAND OF KURE 1/		13	13	12-01-90
ISLAND OF MAUI				
04-01--11-30	79	71	150	06-01-93
12-01--03-31	96	73	169	12-01-93
ISLAND OF OAHU	105	62	167	06-01-93
OTHER	79	62	141	06-01-93
JOHNSTON ATOLL 2/	22	22	44	08-01-94
MIDWAY ISLANDS 1/		13	13	12-01-90
NORTHERN MARIANA ISLANDS:				
ROTA	48	77	125	05-01-94
SAIPAN	89	80	169	05-01-94
TINIAN	50	72	122	05-01-94
OTHER	20	13	33	12-01-90

MAXIMUM PER DIEM RATES FOR OFFICIAL TRAVEL IN ALASKA, HAWAII, THE COMMONWEALTHS OF PUERTO RICO AND THE NORTHERN MARIANA ISLANDS AND POSSESSIONS OF THE UNITED STATES BY FEDERAL GOVERNMENT CIVILIAN EMPLOYEES

LOCALITY	MAXIMUM LODGING AMOUNT (A) +	M&IE RATE (B) =	MAXIMUM PER DIEM RATE (C)	EFFECTIVE DATE
PUERTO RICO:				
BAYAMON				
05-01--12-14	$ 93	$ 73	$166	09-01-93
12-15--04-30	116	76	192	12-15-93
CAROLINA				
05-01--12-14	93	73	166	09-01-93
12-15--04-30	116	76	192	12-15-93
FAJARDO (INCL CEIBA, LUQUILLO AND HUMACAO)				
04-16--12-10	65	52	117	10-01-93
12-11--04-15	110	52	162	12-11-93
FT. BUCHANAN (INCL GSA SERV CTR, GUAYNABO)				
05-01--12-14	93	73	166	09-01-93
12-15--04-30	116	76	192	12-15-93
MAYAGUEZ	85	65	150	08-01-92
PONCE	96	75	171	09-01-93
ROOSEVELT ROADS				
04-16--12-10	65	52	117	10-01-93
12-11--04-15	110	52	162	12-11-93
SABANA SECA				
05-01--12-14	93	73	166	09-01-93
12-15--04-30	116	76	192	12-15-93
SAN JUAN (INCL SAN JUAN COAST GUARD UNITS)				
05-01--12-14	93	73	166	09-01-93
12-15--04-30	116	76	192	12-15-93
OTHER	63	52	115	08-01-92
VIRGIN ISLANDS OF THE U.S.:				
ST. CROIX				
04-15--12-14	119	73	192	08-01-94
12-15--04-14	169	78	247	12-15-94
ST. THOMAS				
04-17--12-17	141	106	247	08-01-94
12-18--04-16	220	114	334	12-18-94
WAKE ISLAND 2/	4	17	21	12-01-90
ALL OTHER LOCALITIES	20	13	33	12-01-90

MAXIMUM PER DIEM RATES FOR OFFICIAL TRAVEL IN ALASKA, HAWAII, THE COMMONWEALTHS OF PUERTO RICO AND THE NORTHERN MARIANA ISLANDS AND POSSESSIONS OF THE UNITED STATES BY FEDERAL GOVERNMENT CIVILIAN EMPLOYEES

FOOTNOTES

1/ Commercial facilities are not available. The meal and incidental expense rate covers charges for meals in available facilities plus an additional allowance for incidental expenses and will be increased by the amount paid for Government quarters by the traveler.

2/ Commercial facilities are not available. Only Government-owned and contractor operated quarters and mess are available at this locality. This per diem rate is the amount necessary to defray the cost of lodging, meals and incidental expenses.

3/ On any day when US Government or contractor quarters are available and U.S. Government or contractor messing facilities are used, a meal and incidental expense rate of $19.65 is prescribed to cover meals and incidental expenses at Shemya AFB, Clear AFS, Galena APT and King Salmon APT. This rate will be increased by the amount paid for U.S. Government or contractor quarters and by $4 for each meal procured at a commercial facility. The rates of per diem prescribed herein apply from 0001 on the day after arrival through 2400 on the day prior to the day of departure.

4/ On any day when U.S. Government or contractor quarters are available and U.S. Government or contractor messing facilities are used, a meal and incidental expense rate of $34 is prescribed to cover meals and incidental expenses at Amchitka Island, Alaska. This rate will be increased by the amount paid for U.S. Government or contractor quarters and by $10 for each meal procured at a commercial facility. The rates of per diem prescribed herein apply from 0001 on the day after arrival through 2400 on the day prior to the day of departure.

5/ On any day when U.S. Government or contractor quarters are available and U.S. Government or contractor messing facilities are used, a meal and incidental expense rate of $25 is prescribed instead of the rate prescribed in the table. This rate will be increased by the amount paid for U.S. Government or contractor quarters.

6/ The meal rates listed below are prescribed for the following locations in Alaska: Cape Lisburne RRL, Cape Newenham RRL, Cape Romanzof APT, Fort Yukon RRL, Indian Mtn RRL, Sparrevohn RRL, Tatalina RRL, Tin City RRL, Barter Island AFS, Point Barrow AFS, Point Lay AFS and Oliktok AFS. The amount to be added to the cost of government quarters in determining the per diem will be $3.50 plus the following amount:

	Daily Rate
DOD Personnel	$13
Non-DOD Personnel	$30

BILLING CODE 5000-04-C

Dated: August 3, 1994.

L.M. Bynum,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 94–19439 Filed 8–9–94; 8:45 am]

BILLING CODE 5000–04–M

Department of the Army

Availability of a Supplement to the Theater Missile Defense Extended Test Range Draft Environmental Impact Statement

AGENCY: Department of the Army, Department of Defense.

ACTION: Notice of availability.

SUMMARY: The Supplement to the Draft Environmental Impact Statement (DEIS) for the Theater Missile Defense (TMD) Extended Test Range proposal is now available for review and comment. The Supplement to the DEIS was prepared to supplement the information provided in the TMD Extended Test Range DEIS and identifies and assesses potential environmental impacts of additional booster drop zones associated with the White Sands Missile Range (WSMR) extended test range alternative. Only the proposed additional booster drop zones for the WSMR extended test range alternative are discussed in the Supplement. Assessment and discussions pertaining to the overall TMD Extended Test Range proposal are contained in the DEIS published in January 1994. The four extended test range alternatives addressed in the DEIS are Eglin AFB, Florida, (including Cape San Blas), Western Range California (including Vandenberg AFB, Point Mugu, and San Clemente Island), and U.S. Army Kwajalein Atoll and Wake Island in the mid-Pacific.

The TMB Extended Test Range DEIS identified potentially significant environmental impacts associated with the original booster drop zones identified for the proposed Fort Wingate Depot Activity (FWDA), New Mexico, and Green River Launch Complex (GRLC), Utah, sites. Through consultation with appropriate government agencies, meetings with environmental groups, contacts with local land owners, and selection of a booster having different technical requirements, the U.S. Army has identified additional booster drop zones that may reduce environmental impacts resulting from booster drops. In keeping with the spirit and purpose of the National Environmental Policy Act (NEPA), the Army determined that a Supplement to the DEIS is appropriate to address these additional booster drop zone because of the significant new circumstances relevant to the proposed action. At this time, use of these additional drop zones is preferred over the use of the original drop zones addressed in the prior DEIS. However, a decision will not be made until at least 30 days after distribution of the Final Environmental Impact Statement.

The Supplement to the DEIS addresses the potential environmental impacts that would result from the use of these additional booster drop zones identified for the GRLC and FWDA located in the WSMR extended test range alternative. It also identifies any mitigation measures that could avoid or lessen those impacts. Environmental resource topics evaluated include: air quality, airspace, noise, geology and soils, water resources, socioeconomic, hazardous materials and waste, health and safety, land use, infrastructure and transportation, and biological and cultural resources.

The lead agency is the U.S. Army Space and Strategic Defense Command. Ballistic Missile Defense Organization, United States Air Force, United States Navy, and Federal Aviation Administration are cooperating agencies.

Subsequent to the publication of the TMD Extended Test Range DEIS, additional booster drop zones were identified for the WSMR extended test range alternative. This Supplement to the DEIS supplements the information provided in the TMD Extended Test Range DEIS and describes and analyzes the potential impacts of utilizing these additional target vehicle booster drop zones located along the target missile flight paths between the GRLC and FWDA launch points and the WSMR.

The proposed action associated with the overall TMD program is to conduct multiple missile test and operational flights and supporting activities along extended-range flight paths with missile intercepts occurring over existing test ranges or open sea areas. The proposed action includes test site modifications and launch preparations required in order to conduct test and operational flights. Approximately 100 flight test events would be conducted from one or more off-range locations and potentially at more than one extended test range. The four ranges under consideration are WSMR, New Mexico; Eglin AFB, Florida (including Cape San Blas); Western Range California (including Vandenberg AFB, Point Mugu, and San Clemente Island); and U.S. Army Kwajalein Atoll and Wake Island in the mid-Pacific. For the purpose of environmental analysis, four tests per month from each extended test range alternative are assumed. Tests would begin in 1995 and continue through 2000.

DATES: The Army will conduct public hearings concerning the Supplement to the DEIS in the following communities. Public comments are invited through September 28, 1994.

August 23, 1994—Magdalena, New Mexico, Monticello, Utah

August 24, 1994—Grants, New Mexico, Salt Lake City, Utah

ADDRESSES: Written comments may be forwarded to: Mr. David Hasley, U.S. Army Space and Strategic Defense Command, ATTN: CSSD–EN–V, P.O. Box 1500, Huntsville, AL 35807–3801 Written comments should be received by September 28, 1994. To record requests for further information call toll free 1–800–603–3030.

Dated: August 5, 1994.

Raymond J. Fatz,

Acting Deputy Assistant Secretary of the Army (Environmental, Safety and Occupational Health) OASA (I, L&E)

[FR Doc. 94–19528 Filed 8–9–94; 8:45 am]

BILLING CODE 3710–08–M

Grant of a Partially Exclusive License for Device for Measuring Reflectance and Fluorescence in In-Situ Soil

AGENCY: U.S. Army Engineer Waterways Experiment Station, DOD.

ACTION: Notice.

SUMMARY: In accordance with 37 CFR 404.7(a)(1)(i), announcement is made of a prospective partially exclusive license of U.S. Patent No. 5,128,882, entitled "Device for Measuring Reflectance and Fluorescence of In-Situ Soil".

DATES: Written objections must be filed not later than (60 days from the date of publication of this notice in the **Federal Register**).

ADDRESSES: U.S. Army Corps of Engineers, Waterways Experiment Station, CEWES–CT–C, Vicksburg, Mississippi 39180–6199.

FOR FURTHER INFORMATION CONTACT: Ms. Norma E. Logue, (601) 634–3076.

SUPPLEMENTARY INFORMATION: The Device for Measuring Reflectance and Fluorescence of In-Situ Soil was invented by Philip G. Malone and Stafford S. Cooper (U.S. Patent Application No. 570,679; U.S. Patent No. 5,128,882; filing date August 22, 1990; issue date, July 7, 1992). Rights to this United States patent have been assigned to the United States Government as represented by the Secretary of the Army. Under the authority of section 11(a)(2) of the

Federal Technology Transfer Act of 1986 (Public Law 99–502) and section 207 of Title 35, U.S. Code, the Department of the Army, as represented by the U.S. Army Corps of Engineers, Waterways Experiment Station, intends to grant a partially exclusive license for the above mentioned patent to Hogentogler & Company, Inc., Columbia, Maryland 21045.

Pursuant to 37 CFR 404.7(a)(1)(i), any interested party may file written objections to this prospective partially exclusive license arrangement. Written objections should be addressed to the above address.

Kenneth L. Denton,

Army Federal Register Liaison Officer.

[FR Doc. 94–19463 8–9–94; 8:45 am]

BILLING CODE 3710–92–M

Department of the Navy

Intent to Prepare an Environmental Impact Statement for the Disposal and Reuse of Naval Training Center Orlando, Orlando, FL

Pursuant to the National Environmental Policy Act (NEPA) as implemented by the Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500–1508), the Department of the Navy announces its intent to prepare an Environmental Impact Statement (EIS) to evaluate the environmental effects of the disposal and reuse of Naval Training Center (NTC) Orlando, Florida. This disposal and reuse is being conducted in compliance with the Defense Base Closure and Realignment Act (BCRA) of 1990.

In accordance with recommendations of the 1993 Base Closure and Realignment Commission, the Navy plans to close NTC Orlando, and its three remote sites: Area "C", Herndon Annex, and NTC Annex. Approximately 2,020 acres and associated buildings will be available for reuse following closure of NTC Orlando and the remote sites. NTC Orlando's functions and operations will be relocated to other Department of Defense locations.

The proposed action involves the disposal of land, buildings, and infrastructure of NTC Orlando for subsequent use. As required by the NEPA process, the Navy will evaluate alternative reuses for the NTC Orlando properties. In accordance with CEQ regulations, the "no-action" alternative of Navy retention of NTC Orlando properties in a caretaker status will also be addressed in the EIS. However, because the process is mandated by the BCRA, selection of the "no-action" alternative would be considered impracticable for the Navy to implement.

Reuse of NTC Orlando's assets will be defined in coordination with the City of Orlando NTC Reuse Commission. Anticipated uses include, but are not limited to: residential, industrial, commercial, office, recreational, or a combination of these. Major environmental issues that will be addressed in the EIS include, but are not limited to: air quality, water quality, wetlands, endangered species, cultural resources, and socioeconomic impacts.

Navy will initiate a scoping process for the purpose of determining the scope of issues to be addressed and for identifying the significant issues related to this action. Navy will hold a public scoping meeting on Thursday, August 25, 1994, beginning at 7 p.m., at the Audubon Park Elementary School, 1500 Falcon Drive, Orlando, Florida. This meeting will be advertised in the Orlando area newspapers.

A brief presentation will precede request for public comment. Navy representatives will be available at this meeting to receive comments from the public regarding issues of concern to the public. It is important that federal, state, and local agencies and interested individuals take this opportunity to identify environmental concerns that should be addressed during the preparation of the EIS. In the interest of available time, each speaker will be asked to limit oral comments to five minutes.

Agencies and the public are also invited and encouraged to provide written comment in addition to, or in lieu of, oral comments at the public meeting. To be most helpful, scoping comments should clearly describe specific issues or topics which the commenter believes the EIS should address. Written statements and/or questions regarding the scoping process should be mailed no later than September 26, 1994, to: Commanding Officer, Southern Division, Naval Facilities Engineering Command, P.O. Box 190010, North Charleston, SC 29419–9010 (Attn: Mr. Ronnie Lattimore, Code 203RL), telephone (803) 743–0796, Fax (803) 743–0888.

Dated: August 5, 1994

Lewis T. Booker, Jr.,

LCDR, JAGC, USN, Federal Register Liaison Officer.

[FR Doc. 94–19504 Filed 8–9–94; 8:45 am]

BILLING CODE 3810–AE–M

DEPARTMENT OF EDUCATION

National Educational Research Policy and Priorities Board; Nominations

AGENCY: Department of Education.

ACTION: Acceptance of Nominations for Membership on the National Educational Research Policy and Priorities Board (Board).

1. Introduction

The U.S. Department of Education's Office of Educational Research and Improvement (OERI) was recently reauthorized by Public Law 103–227 Title IX: the "Educational Research, Development, Dissemination and Improvement Act of 1994" (the Act). Part B of the Act directs the Secretary to establish, within OERI, a "National Educational Research Policy and Priorities Board". In accordance with this directive, notice is hereby given that the Secretary of Education (the Secretary) is accepting nominations of individuals who, by virtue of their training, experience, and background in educational research and the education professions, are exceptionally qualified to appraise the educational research and development effort of the United States and to work with the Assistant Secretary for Educational Research and Improvement (Assistant Secretary) in fulfilling other duties as described elsewhere in this Notice. (Section 921(f)(1) of the Act)

2. Description of the Board

The Board shall consist of 15 members appointed by the Secretary. Five members shall be appointed from among researchers in the field of education who have been nominated by the National Academy of Sciences; five shall be outstanding school-based professional educators; and five shall be individuals who are knowledgeable about the educational needs of the United States and may include: parents with experience in promoting parental involvement in education, Chief State School Officers, local educational agency superintendents, principals, members of State or local boards of education or Bureau of Indian Affairs-funded school boards, and individuals from business and industry with experience in promoting private sector involvement in education.

Members of the Board may not serve on any other governing or advisory board within the Department of Education (Department) or as a paid consultant of the Department.

The Act provides that generally the terms of office for members shall be for six years. However, for the first Board

appointed under this legislative authority, the terms of office shall, through a random selection process at the time of appointment, be as follows: five members will serve for three (3) years; five members will serve for four (4) years; and five members will serve for six (6) years. (Section 921(l)(2)(B) of the Act)

At a minimum, the Board is required to meet quarterly. Additional time will most likely be required for subcommittee meetings and to fulfill the duties assigned to the Board. By law, the Board is required to hold its first meeting no later than May 15, 1995. However, the Secretary and Assistant Secretary believe that the restructuring of the Department's education research and dissemination effort is of such urgency and high priority that they would like to have the advice of and collaboration with the Board begin as soon as possible. Therefore, they anticipate holding the Board's first meeting in late November, 1994.

3. Functions of the Board

Section 921(b) of the Act provides that the Board had the responsibility to:

(a) work collaboratively with the Assistant Secretary to determine priorities that should guide the work of OERI and provide guidance to the Congress in its oversight of OERI;

(b) review and approve the Research Priorities Plan developed by the Assistant Secretary in collaboration with the Board;

(c) review and approve standards for the conduct and evaluation of all research, development, and dissemination carried out under the auspices of OERI; and

(d) review regularly, evaluate, and publicly comment upon, the implementation of its recommended priorities and policies by the Department and the Congress.

Additional responsibilities of the Board include:

(1) Providing advice and assistance to the Assistant Secretary in administering the duties of OERI;

(2) Making recommendations to the Assistant Secretary of persons qualified to fulfill the responsibilities of the Director of each research institute established within OERI, making special efforts to identify qualified women and minorities and soliciting and giving due consideration to recommendations from professional associations and interested members of the public;

(3) Advising and making recommendations to the President with respect to individuals who are qualified to fulfill the responsibilities of the Assistant Secretary for OERI;

(4) Reviewing and commenting upon proposed contract, grant, and cooperative agreement proposals;

(5) Advising the United States on the Federal educational research and development effort;

(6) Recommending ways for strengthening active partnerships among researchers, educational practitioners, librarians, and policymakers;

(7) Recommending ways to strengthen interaction and collaboration between the various program offices and components;

(8) Soliciting advice and information from the educational field—making sure to involve educational practitioners particularly teachers in the process—to define research needs and provide suggestions for research topics;

(9) Soliciting advice from practitioners, policymakers, and researchers, and recommending missions for the national research centers which are funded by OERI by identifying topics which require long-term, sustained, systematic, programmatic, and integrated research and dissemination efforts;

(10) Providing recommendations for translating research findings into workable, adaptable models for use in policy and in practice across different settings, and recommendations for other forms of dissemination; and

(11) Providing recommendations for creating incentives to draw talented young people into the field of educational research, including scholars from disadvantaged and minority groups. (Section 921(c) of the Act)

4. Nomination Categories

Nominations are being requested for the five outstanding school-based professional educators and the five individuals who are knowledgeable about the educational needs of the United States as described under the heading *Description of the Board* above. The Secretary must give due consideration to the gender, race, and ethnicity of appointees to assure that the Board is broadly representative of the diversity of the United States. (Section 921(f)(2) of the Act)

5. Applicability of Certain Federal Legal Requirements

The Board is subject to Federal legislation (the Federal Advisory Committee Act, 5 U.S.C. App. 2; and the Government in the Sunshine Act, 5 U.S.C. 552b), which is designed to ensure that public business is publicly conducted, and that government advisory and policymaking groups are not inappropriately used to advance the private interests of their members. Board members are considered special government employees who are subject to certain government-wide restrictions on conflicts of interest.

6. Nomination Procedures

In order to be assured of consideration, nominations—which include the nominee's name, address, telephone number and brief biography—should be mailed or hand delivered no later than September 12, 1994 to Diane Rossi, Office of the Secretary of Education, U.S. Department of Education, Attention: National Educational Research Policy and Priorities Board, 600 Independence Avenue, SW, Washington, DC 20202–0106. If the nomination is late, the Department may lack sufficient time to review it with other nominations and may decline to accept it.

(a) Nominations Delivered by Mail

Nominations delivered by mail must be addressed as indicated above and must show proof of mailing consisting of one of the following: (1) a legibly dated U.S. Postal Service Postmark; (2) a legible mail receipt with the date of mailing stamped by the U.S. Postal Service; (3) a dated shipping label, invoice, or receipt from a commercial carrier. The following are *not* accepted as proof of mailing: (1) A private metered postmark, or (2) a mail receipt that is not dated by the U.S. Postal Service.

(b) Nominations Delivered By Hand/ Courier Service

A nomination that is hand delivered must be taken to the U.S. Department of Education, Room 6103, 600 Independence Avenue, SW, Washington, D.C. 20202–0106. Hand-delivered nominations will be accepted daily between the hours of 8:30 a.m. and 5:00 p.m., Washington, DC time, except Saturdays, Sundays, and Federal holidays. In order for a nomination sent through a Courier Service to be considered timely, the Courier Service must be in receipt of the nomination on or before the deadline.

Dated: August 5, 1994.

Sharon P. Robinson,

Assistant Secretary for Educational Research and Improvement.

[FR Doc. 94–19535 Filed 8–9–94; 8:45 am]

BILLING CODE 4000–01–M

DEPARTMENT OF ENERGY

Morgantown Energy Technology Center Grant; Financial Assistance Award to University of Oklahoma

AGENCY: Morgantown Energy Technology Center, Department of Energy (DOE).

ACTION: Notice of acceptance of an unsolicited financial assistance application for Grant award.

SUMMARY: Based upon a determination made pursuant to 10 CFR 600.14 the DOE, Morgantown Energy Technology Center gives notice of its plans to award a 36 month Grant to the University of Oklahoma with an associated budget of approximately $1,206,445 of which the University of Oklahoma will cost share approximately 13 percent.

FOR FURTHER INFORMATION CONTACT: Laura E. Brandt, I–07, U.S. Department of Energy, Morgantown Energy Technology Center, P.O. Box 880, Morgantown, West Virginia 26507–0880, Telephone: (304) 291–4079, Procurement Request No. 21–94MC31170.000.

SUPPLEMENTARY INFORMATION: The pending award is based on an unsolicited application for the project entitled "Enhancement of Methane Conversion Using Electric Fields". The overall objective of this project is to develop a novel, economical process for the conversion of natural gas to more valuable products such as methanol, ethylene, and other organic oxygenates or higher hydrocarbons. Specifically, the University of Oklahoma will investigate and develop electric field conversion and electric field-enhanced catalytic conversion of methane, resulting in an economical process or processes for the direct conversion of natural gas to more valuable products. The most promising process configurations and the most promising operating conditions will be identified and the economic viability of the processes evaluated. The overall scientific or technical merits of the new technology from these research efforts in methane conversion are primarily in the areas of transportation and chemical feedstocks. Much of the natural gas occurs in remote areas in Alaska, and offshore reservoirs. Because of this remoteness, the cost of transporting this gas to markets may eventually prohibit the utilization of these resources. Therefore, considerable interest is being shown in developing a relatively simple, cost effective, process suitable for installation at the well-head for conversion of methane to transportable liquid. Technically this would provide new market areas for natural gas and would provide the means for transporting costly natural gas to market at acceptable costs. If these techniques were developed it could be used to offset imported oil to this country and would provide new transportation fuels, energy fuels and chemical feedstocks to the marketplace.

Louie L. Calaway,

Director, Acquisition and Assistance Division, Morgantown Energy Technology Center.

[FR Doc. 94–19534 Filed 8–9–94; 8:45 am]

BILLING CODE 6450–01–P

Site-Wide Environmental Impact Statement, Los Alamos National Laboratory

AGENCY: Department of Energy.

ACTION: Advance Notice of Intent to Prepare a Site-Wide Environmental Impact Statement for Continued Operations of the Los Alamos National Laboratory.

SUMMARY: The United States Department of Energy (DOE) is providing advance notice of its intent to prepare a Site-Wide Environmental Impact Statement (SWEIS) for its Los Alamos National Laboratory (LANL), Los Alamos, New Mexico, a DOE multipurpose research and development laboratory. The SWEIS will be prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 [42 U.S.C. 4321 *et seq.*], the Council on Environmental Quality NEPA regulations [40 CFR Parts 1500–1508] and the DOE NEPA regulations [10 CFR Part 1021]. The SWEIS will analyze the potential environmental impacts of continuing to operate LANL and reasonable alternative operating envelopes.

With this Advance Notice, DOE initiates a prescoping process to identify possible issues and alternatives to be analyzed in the SWEIS. As provided at 10 CFR 1021.311(b), this Advance Notice provides an early opportunity to inform the public of the SWEIS and to solicit early public comments. After this prescoping process, DOE will publish a Notice of Intent (NOI) which will identify the proposed scope of the SWEIS, including the proposed alternatives and issues developed through this prescoping process. Although schedules have not yet been developed, it is DOE's intent to start the full SWEIS process as soon as possible and complete the process as quickly as possible. The public is invited to comment on this Advance Notice and to attend public information meetings and workshops addressing SWEIS issues.

DATES: Written comments on the scope of the SWEIS are invited from the public. Prescoping comments should be postmarked by October 31, 1994. The Department will again invite comments on the scope of the SWEIS after the NOI is published.

The Department will hold public information meetings and workshops in conjunction with prescoping. These will be held at various places in northern New Mexico. The times, dates, and format of these meetings will be announced in the local press no later than two weeks prior to the meetings and publicized in other ways as appropriate.

ADDRESSES: Written comments on the scope of the SWEIS or other matters concerning the SWEIS, or requests to be put on a mailing list for future information about the SWEIS, should be addressed to: M. Diana Webb, Los Alamos Area Office, U.S. Department of Energy, 528 35th Street, Los Alamos, NM 87544, Attn: LANL SWEIS, (505) 665–6353, Facsimile (505) 665–4504.

FOR FURTHER INFORMATION CONTACT: For general information on the DOE NEPA process, please contact: Carol M. Borgstrom, Director, Office of NEPA Oversight, EH–25, U.S. Department of Energy, 1000 Independence Avenue SW, Washington, DC 20585, (800) 472–2756 or (202) 586–4600.

SUPPLEMENTARY INFORMATION:

About the SWEIS. The Department has a policy to prepare SWEISs for large, multi-facility DOE sites [10 CFR 1021.330], such as LANL. The purpose of a SWEIS is to provide DOE and its stakeholders with a comprehensive look at the environmental impacts caused by its operations and activities at a site. The NEPA process allows for Federal, State, tribal, county, municipal and public participation in the environmental review and resultant decisionmaking process. A SWEIS was last prepared for LANL in 1979 [DOE/EIS–0018]. The planned SWEIS would replace that document.

A SWEIS is a useful tool for DOE to manage its facilities and operations. It provides the DOE decisionmakers, site management, and the public with comprehensive information on the cumulative impact of past, ongoing and planned activities at a site in order to plan for quality stewardship of the resources entrusted to DOE's care. A SWEIS can be used to establish an environmentally-sound operating envelope for site activities and establish thresholds of significance to identify future environmental impacts. The SWEIS is expected to support later NEPA reviews by allowing DOE to focus

on project-specific issues and to narrow and simplify the scope of later reviews. This process is called "tiering" [40 CFR 1508.28]. DOE believes that the SWEIS analysis will generally provide adequate NEPA coverage for those activities and projects covered by the SWEIS. However, a SWEIS may not replace the need for future, project-specific NEPA reviews as future proposals for LANL facilities are developed. In accordance with 10 CFR 1021.330(d), DOE will evaluate the SWEIS at least every five years after its completion to determine whether it should be revised.

Site-wide Analysis. The SWEIS will address operations and planned activities at LANL foreseen within the next 5 to 10 years. The SWEIS will focus on operating practices and facility management; DOE does not expect to be able to anticipate all future research and development projects that LANL may be called upon to support over the next ten years. The Department anticipates that the SWEIS will provide an analysis of all activities at LANL and all DOE land management activities related to operations at LANL. The SWEIS will also examine DOE's ongoing obligations to the surrounding community under the Atomic Energy Communities Act [42 U.S.C. 2301 *et seq.*], including proposals to transfer certain tracts of DOE-administered land to Los Alamos County. The Department intends to use the SWEIS to develop: mitigation measures for operating and facilities management practices; a nuclear materials storage and handling strategy; a waste management strategy; an environmental restoration strategy; and a land transfer strategy for LANL. The SWEIS will include an analysis of the impacts of operating all major facilities at LANL. Specific research projects or facility proposals that are not included within the SWEIS analysis would be subject to project-specific NEPA reviews.

Los Alamos National Laboratory's mission. The Department coordinates and administers the energy functions of the Federal government. Among other things, it is responsible for the nuclear weapons program, research and development of energy technologies, and basic science research. The Laboratory is one of DOE's primary research and development laboratories. It was established in 1943 to provide research, design, and testing for nuclear weapons and nuclear materials and remains one of the three laboratories in DOE's nuclear weapons complex. Over the past 50 years, LANL's mission has expanded to include research in energy, materials science, nuclear safeguards and security, biomedical science, computational science, environmental protection and cleanup, and other basic science research. In addition to work done in support of DOE programs, LANL provides research and science services for other Federal agencies, universities, foreign countries, and private industry. The Laboratory is one of the largest multiprogram research laboratories in the world, with an annual budget of about $1 billion and about 10,000 contractor and sub-contractor employees. The Laboratory covers about 43 square miles of Federal land in north-central New Mexico in Los Alamos and Santa Fe Counties.

The Secretary of Energy has initiated an independent review to provide recommendations on the future missions of all DOE Laboratories. The SWEIS will incorporate any recommendations accepted by DOE regarding the future missions of LANL.

Related NEPA reviews. Currently, certain of LANL's mission elements are being considered in several other broad-scale NEPA reviews. In addition, about 20 proposed projects at LANL are in the process of having either an Environmental Assessment (EA) or Environmental Impact Statement (EIS) prepared.

The Environmental Restoration and Waste Management Programmatic EIS (PEIS) [Notice of Intent, 55 FR 42633] will analyze the DOE plan to formulate and implement an integrated Environmental Management program. The Laboratory is one of the alternative sites proposed to store and process transuranic radioactive waste and store, process, and provide on-site disposal for low-level radioactive waste, possibly including material generated at locations other than LANL.

The Nuclear Weapons Complex Reconfiguration PEIS [revised Notice of Intent, 56 FR 39528] analyzes alternatives for the reconfiguration of the weapons complex due to nuclear weapons stockpile reductions. The Department currently is considering how the scope of this PEIS should be revised further to reflect more recent budget and stockpile reduction decisions. At this time, the Reconfiguration PEIS and its related decisions are not expected to change the weapons mission at LANL.

The Advanced Neutron Source EIS analyzes the siting, construction and operation of a research nuclear reactor [Notice of Intent, 58 FR 31019]. The Laboratory is being considered as an alternative to the preferred site at DOE's Oak Ridge Reservation, Tennessee.

The Programmatic Spent Nuclear Fuel Management and INEL Environmental Restoration and Waste Management Programs EIS includes a programmatic analysis of transporting, processing, and storing spent nuclear reactor fuel [Notice of Availability, Draft EIS, 59 FR 32688]. The Laboratory has generated spent fuel and continues to temporarily store this material pending the outcome of programmatic decisions following the spent fuel EIS.

The Department is preparing a site-wide EIS for all activities at its Pantex Plant, near Amarillo, Texas [Notice of Intent, 59 FR 26635]. The primary mission of this facility is disassembly of nuclear weapons. The Pantex site-wide EIS will also take a programmatic look at storing disassembled nuclear weapons components. The Laboratory disassembles and temporarily stores radioisotopic thermoelectric generators (radioactive heat sources) that have been removed from retired weapons and could be considered as an alternative site for other components.

The Department is preparing a PEIS for Storage and Disposition of Weapons-Usable Fissile Materials [Notice of Intent, 59 FR 31985]. The PEIS will analyze alternatives for the long-term storage and disposition of surplus nuclear materials in order to minimize the risk of proliferation of nuclear weapons capability in the world. Phase I of the project will be to provide safe, controlled, inspectable interim storage. As part of this phase, DOE is performing a vulnerability study to determine the risks associated with current storage of nuclear materials. Phase II will be long-term storage or disposition of surplus material. Among other things, the PEIS will analyze a new, consolidated long-term storage facility at five candidate sites (LANL is not a candidate site), and continued use of interim storage facilities. The Laboratory now stores some nuclear materials.

The Department is preparing a programmatic EA on its proposal to produce medical isotopes for medical applications such as diagnostics and chemotherapy [EA determination, 02/24/93]. The proposal involves irradiating targets in a nuclear reactor, processing the material, and disposing of waste. The original proposal was to use the Omega West Reactor at LANL to produce the isotopes. Since that time, DOE has decided to permanently shut down that reactor, and it would not be used for this purpose. Alternatives currently under consideration involving LANL facilities would include fabricating targets at the Chemistry and Metallurgy Research Building, processing and recycling irradiated material at that facility, and disposing of low-level radioactive waste at LANL's waste management area.

Besides these broad-scale NEPA documents, DOE is in the process of conducting several environmental analyses for specific proposed projects at LANL or has made preliminary plans to start such reviews. Through this prescoping process, the public is invited to comment as to whether the NEPA reviews listed in Tables 1 and 2 should precede, be incorporated into, or be deferred until after the SWEIS. In accordance with requests from the State, tribes, and the public, DOE invites public comment as to which of these ongoing NEPA reviews should be included within the scope of alternatives to be analyzed in the SWEIS. Specifically, as requested by the public, DOE invites comments to assist in determining either: (1) The project has independent justification and would not prejudice the outcome of the SWEIS, and the NEPA review can proceed; (2) the project is integral to alternatives to be analyzed in the SWEIS, and the NEPA review will be included in the SWEIS; or (3) the project depends on the outcome of the SWEIS, and the NEPA review will be deferred until after the SWEIS is completed.

These projects and DOE's initial recommendations are listed in Table 1. For a few projects, DOE does not make an initial recommendation but will develop its recommendation after considering public comment. Table 1 also provides information on the DOE program which sponsors the proposals and the date of the determination of the initial level of NEPA review. The Department may initiate other projects while the SWEIS is being prepared; Table 2 lists planned projects for which DOE believes NEPA reviews may be needed prior to completion of the SWEIS but has not yet issued a NEPA determination. The public is invited to comment on whether these NEPA reviews should proceed independently of the SWEIS, or should be included in the SWEIS analysis. The NOI will summarize comments received, explain whether or not DOE proposes to continue with any of these NEPA reviews, and describe their relationship to the alternatives suggested in the NOI.

Issues and alternatives. The Department has not yet identified environmental issues or suggested alternatives for the SWEIS. These will be developed over the next few months through the prescoping process with the assistance of stakeholder involvement. The Department anticipates that alternatives will be issue-driven to allow alternatives to focus on activities or operations which are of concern ("at issue") to the agency or the public. The SWEIS would not analyze alternatives to current practices for which neither the agency nor the public have identified any concerns.

The SWEIS will look at reasonable alternatives to the current situation. The public is specifically invited to comment on whether analysis of an alternative which would describe phasing out all LANL operations and eventually decommissioning all facilities (a "shutdown alternative") would be useful for comparison to ongoing activities.

In 1976, LANL was designated as one of four National Environmental Research Parks (NERPs). The NERPs were established to contribute to the understanding of how people can live in balance with nature while enjoying the benefits of technology. The Department has never instituted an active management plan for the LANL NERP. The public is specifically invited to comment on whether the SWEIS should contain alternatives for managing the NERP or whether the designation should be lifted.

The NEPA process. The DOE NEPA review process is described in the Council on Environmental Quality NEPA regulations [40 CFR Parts 1500–1508] and the DOE NEPA regulations [10 CFR Part 1021]. Through NEPA, Congress requires that Federal agencies consider environmental impacts when making decisions and lay the decisionmaking process open to public scrutiny. An EIS documents the environmental review of major Federal actions which may significantly affect the human environment; an EA may be used to determine the need for an EIS or to document that no significant environmental impacts would be expected to occur.

The EIS process begins with publication of a NOI to solicit public comments to assist in determining the scope of analysis in the EIS [40 CFR 1501.7; 10 CFR 1021.311]. The Department documents the results of the scoping process and its plans on how to conduct the EIS review in an Implementation Plan [10 CFR 1021.312]. An agency publishes a draft EIS to gain public input into the environmental analysis before a final EIS is issued [40 CFR 1502.9; 10 CFR 1021.313]. An agency issues a Record of Decision (ROD) to document its decision and to explain how the environmental considerations documented in the EIS were balanced against other factors which led to the decision, such as technical, regulatory, or financial considerations [40 CFR 1505.2; 10 CFR 1021.315].

A PEIS is a broad-scale analysis of proposed programs or policies [40 CFR 1502.4(b)], including proposals with geographically connected actions [40 CFR 1502.4(c)(1)]. A SWEIS is a specific type of PEIS used to analyze connected actions at a DOE site [10 CFR 1021.330]. An agency follows the same steps to prepare a SWEIS as for an EIS.

Classified material. The Department will review classified material while preparing the SWEIS. Within the limits of classification, DOE will provide to the public as much information as possible. If necessary, classified information will be segregated into a classified appendix.

Public involvement opportunities. The Department will conduct prescoping over the next few months. The results of prescoping will be provided in the NOI. Through this Advance Notice, DOE asks other Federal agencies, the State, tribal governments, local governments, and the general public to assist in identifying the scope of analysis for the SWEIS, including suggestions on issues, alternatives, and other topics of interest. As part of the prescoping process, DOE will hold a series of public information meetings and workshops, and provide other opportunities for public involvement. These will be publicized in local media at least two weeks in advance. Other Federal agencies, which perform work at LANL or manage land that might be affected by LANL activities, will be consulted about the SWEIS. Information briefings will be given to the State, affected tribes, and local governments. Other parties with an interest in LANL's operations, such as private companies having industrial partnerships with LANL, will be advised of the SWEIS process. The Department invites stakeholders to submit written comments on the content of the SWEIS and suggestions on the SWEIS review process, including suggestions for the conduct or format of public involvement opportunities, to the address given above. Comments received prior to October 31, 1994, will be considered in developing the proposed issues and alternatives for the NOI.

The NOI will explain how comments and issues raised in the prescoping process have been incorporated into the suggested alternatives and issues identified in that Notice. Publication of the NOI will be followed by a second invitation to comment, public information meetings and workshops, and formal public scoping meetings. The results of the scoping process will be documented in an Implementation Plan which will be made available to the public. Other Federal agencies, the State, tribes, local governments, and the public will be given the opportunity to

review and comment on the draft SWEIS and participate in public hearings. A final SWEIS will be prepared which will explain how public comments on the draft were considered. Following the final SWEIS, DOE intends to issue a ROD to document DOE's decisions regarding the operation of LANL and explain the measures identified to mitigate any adverse impacts.

Copies of written comments, summaries of prescoping public meetings, and other materials pertaining to the development and analysis of the SWEIS will be made available for public review at the Los Alamos National Laboratory Community Reading Room, 1450 Central Ave., Suite 101, Los Alamos, New Mexico 87544. For information on the availability of specific documents and hours of operation, please contact the reading room at (505) 665–2127 or (800) 543–2342.

Signed in Washington D.C. this 4th day of August, 1994, for the United States Department of Energy.

Tara O'Toole, M.D., M.P.H.

Assistant Secretary, Environment, Safety and Health.

TABLE 1.—RECOMMENDATIONS FOR ONGOING NEPA REVIEWS

Title, summary	DOE program sponsor/NEPA determ. date	Discussion, initial recommendation
ENVIRONMENTAL IMPACTS STATEMENTS (EISs)		
Radioactive Liquid Wastewater Treatment Facility, TA–63. Proposed facility would replace existing 30-year-old wastewater treatment facility which has reached the end of its design life.	EM 02/08/93	Discussion: The existing wastewater treatment facility, completed in 1963, is still able to be operated safely and reliably for a few more years, although design standards have changed considerably since that time. It is possible that certain design details, such as wastewater stream source and type, may depend on sitewide decisions regarding the location and use of other facilities at LANL. Detailed design for a replacement facility cannot be started until the NEPA review is completed, which in turn would affect construction schedules. Initial Recommendation: Include in the SWEIS.
ENVIRONMENTAL ASSESSMENTS (EAs)		
Chemistry and Metallurgy Research (CMR) Building Upgrades, TA–3. Part of a series of proposed infrastructure renovations to a 40-year-old facility used for various research projects. CMR supports activities in several other LANL facilities. The purpose of the upgrades is to reduce risk, enhance the safety margin, and provide for the continued safe, reliable, and effective use of the facility to support LANL missions for at least another 20 to 30 years. Some renovations were covered by prior NEPA review and are currently underway.	DP 09/13/93	Discussion: CMR first operated in 1952. Since then, environmental, safety and security design and operating requirements have changed. Utility and infrastructure systems at CMR have aged and need to be replaced. Although current operations in CMR are conducted in a way that protects the safety of workers, the public and the environment, some utility and infrastructure upgrades would allow CMR operations to more closely adhere to current environmental, safety, and health requirements. These include improving or replacing the building's structural, ventilation, electrical, facility monitoring, waste management, and security systems. Another element of the CMR upgrade projects would refurbish Wings 2 and 4 at CMR, to accommodate LANL program needs. If the upgrades were deferred until after the SWEIS, CMR would continue to be used but would also continue to deteriorate as the building systems aged. Initial Recommendation: Analyze in the EA those components of the proposed upgrades that are needed to maintain the existing operation infrastructure, improve safety of operations to workers and the general public, enhance CMR environmental management systems, and provide for improved security. Include in the SWEIS the remainder of the proposed CMR upgrades which relate to long-term programmatic needs, including refurbishing Wings 2 and 4.
High Explosives Materials Test Facility, TA–11. Proposed construction and operation of a new 3,000 square-foot building for mechanical and thermal tests on high explosive materials and related assemblies in support of DOE's science-based stockpile stewardship program. The proposal would consolidate in one building the high explosives work now done in several locations at LANL; the existing facilities have deteriorated substantially and are inadequate to reliably support current needs. LANL has an ongoing mission to evaluate aging weapons to ensure that the enduring nuclear weapons stockpile remains safe and reliable; therefore, LANL must maintain the capability to assure the continuity and reliability of evaluation tests and the safety of workers performing those tests.	DP 03/10/92	Discussion: This is a small-scale construction project to consolidate ongoing activities at LANL and would not increase LANL's existing testing program. If constructing the building were deferred until after the SWEIS, testing and evaluation would continue in the existing facilities. Further deterioration of the existing buildings could disrupt the evaluation program and create uncertainty in LANL's ability to safely and reliably test high explosives materials. A decision to construct this building would not influence, nor be influenced by, sitewide decisions. Initial recommendation: Proceed with EA.

TABLE 1.—RECOMMENDATIONS FOR ONGOING NEPA REVIEWS—Continued

Title, summary	DOE program sponsor/NEPA determ. date	Discussion, initial recommendation
Isotope Separator Facility, TA–48. Proposed 4,000-square-foot laboratory facility to develop pure samples of isotopes to be used as standards for weapons and non-weapons research. This project has been deferred.	DP 12/10/92	Discussion: NEPA review of this project is not needed at this time. Initial Recommendation: Defer until after SWEIS.
Low Energy Accelerator Laboratory (LEAL), TA–53 (formerly Accelerator Prototype Laboratory). Proposed 7,000-square-foot laboratory to support development of proton accelerators for ongoing programs. The low-energy, high-current front end accelerator prototype would be housed and operated in this proposed building.	DP 08/23/92	Discussion: This is a small-scale construction project to support ongoing research. If constructing the building is deferred until after the SWEIS, the research would continue in existing buildings if space allowed. A decision to construct this building would not influence, nor be influenced by, sitewide decisions. Initial Recommendation: Proceed with EA.
Nuclear Materials Storage Facility Upgrade, TA–55 (Revision to 1986 EA). The 1986 EA covers actions currently needed to correct identified design and construction deficiencies. The revised proposal is to increase the storage capacity of an existing nuclear materials storage vault from about 6.6 metric tons of plutonium to about 25 metric tons (LANL's current inventory is about 2.6 metric tons), with a corresponding increase in heat removal capability from 20 kilowatts to 75 kilowatts. The proposed upgrades would also allow storage of material that generates more heat due to radioactive decay.	DP 08/10/93	Discussion: The 1986 EA analyzed constructing and operating the existing vault to consolidate nuclear material storage at LANL. The proposal was revised in 1993 to allow for increased storage capability in the vault; the NEPA determination was to revise the 1986 EA to provide the NEPA review for the increased capacity. If the revised NEPA review were to proceed, DOE could make an early decision on whether to increase the storage capability of the existing vault. This would be necessary if, prior to completing sitewide decisions, DOE needed to store at LANL more material, or different types of material, than is now on-site or anticipated under current mission workloads. If a decision to increase the capacity were deferred until after the SWEIS, DOE and LANL could continue to work towards correcting design and construction deficiencies but could not undertake work that would lead to increased storage capacity. The SWEIS will be used to help develop a nuclear materials storage and handling strategy, which would include projections of amounts of material anticipated to be on site if LANL's weapons mission changed; sitewide decisions could influence decisions on the future use and capacity of the vault. Initial Recommendation: Include in SWEIS the proposal to increase the vault's capacity as part of nuclear materials storage and handling strategy. Work to correct existing design and construction deficiencies would continue.
Safety Testing of Pits Under Thermal Stress, CMR Building, TA–3 (formerly Fire Resistant Pit Test Program). Proposed experiments to ensure that the enduring nuclear weapons stockpile is safe and would not cause environmental or health problems in the event of a fire. The project would require minor modifications to one of the hot cells at CMR, but would not require construction of any new facilities. The tests would be on disarmed nuclear weapons devices (pits) to determine the potential for materials failure under fire conditions. LANL has an ongoing mission to evaluate weapons to ensure that the enduring nuclear weapons stockpile remains safe and reliable.	DP 06/02/93	Discussion: This is a small-scale project that would not require construction of a new facility. It is not connected to the infrastructure upgrades at CMR. If the test is deferred until after the SWEIS, some existing uncertainties regarding the safety of the nuclear weapons in the enduring stockpile would remain unresolved. A decision to conduct this test would not influence, nor be influenced by, sitewide decisions. Initial Recommendation: Proceed with EA.
Transuranic Waste Drum Staging Building, TA–55. Proposal to convert an existing 1,000 square-foot building within the Plutonium Facility to temporarily stage transuranic waste pending transportation to LANL's radioactive waste management area at TA–54.	DP 06/11/91	Discussion: This is a small-scale project that would not require construction of new facilities. If the project were deferred until after the SWEIS, waste could continue to be stored in laboratory space. A decision to proceed with this modification would not influence, nor be influenced by, sitewide decisions. Initial Recommendation: Proceed with EA.
Weapons Components Test Facility Relocation, TA–16. Proposal to relocate a test shop to a nearby 11,000-square-foot area now used as a warehouse. The shop is used for materials tests on weapons components and for non-weapons structural tests. A new hydraulic load-test machine press would be installed, and a small addition built to house hydraulic pumps.	DP 12/25/92	Discussion: This is a small-scale project that would not require construction of a new facility. If the project were deferred until after the SWEIS, the same testing operations would continue in the existing space, but the proposed hydraulic press could not be installed. A decision to proceed with this modification would not influence, nor be influenced by, sitewide decision. Initial Recommendation: Proceed with EA.

TABLE 1.—RECOMMENDATIONS FOR ONGOING NEPA REVIEWS—Continued

Title, summary	DOE program sponsor/NEPA determ. date	Discussion, initial recommendation
Decontaminate, Decommission and Demolish (DD&D) Building 86, High Pressure Tritium Laboratory, TA–33. Proposed demolition of a 40-year-old tritium-contaminated building after removing tritium-contaminated equipment. Tritium inventory and equipment removal were covered under a separate NEPA review and are currently underway. The building is being monitored to determine residual tritium levels. Future DD&D of the building would be done under the EM program, but the facility currently remains under DP management.	DP/EM 11/04/91	Discussion: This facility has not operated since 1991. The immediate safety hazard was the removal of tritium-contaminated equipment, which is being accomplished. There is no immediate need to perform DD&D, and this action would produce potentially contaminated building rubble that would have to be disposed of. Initial Recommendation: Include in the SWEIS the remaining DD&D to help determine potential waste volumes for future disposal.
New Sanitary Landfill. Proposal to locate, construct, and operate a new sanitary landfill at LANL.	DP/EM 05/09/91	Discussion: A decision on where to locate the new landfill and how much capacity it should have would depend on sitewide decisions regarding other facilities and a waste management strategy. Initial Recommendation: Include in SWEIS.
Actinide Source Term Waste Test Program, CMR Building, TA–3. Proposal to conduct tests to determine under controlled conditions how actinides (radioactive elements) behave when exposed to brine. This test will be used to provide information important to the decision on whether or not to operate the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. The test results are needed by 12/95 to complete the WIPP performance assessment; to meet this schedule, tests must begin in 1994.	EM 12/09/92	Discussion: This is a small-scale project that would not require construction of a new facility. It is not connected to the infrastructure upgrades at CMR. If the test program is deferred until after the SWEIS, existing uncertainties regarding the performance of WIPP would remain unresolved and the schedule for completing the performance assessment would not be met. A decision to conduct this test would not influence, nor be influenced by, sitewide decisions. Initial Recommendation: Proceed with EA.
Controlled Air Incinerator, Expanded Operations, TA–50. Proposal to use an existing incinerator to treat environmental restoration and operational waste generated at various areas of LANL. The incinerator has previously been permitted and has operated a total of 2,607 hours over 15 years as a research and development facility. Incinerating waste destroys toxic organic constituents and generally reduces waste volume dramatically. Incineration is a recommended best demonstrated available technology within environmental statutes. DOE has a milestone to complete a trial burn by 02/13/95 under its Federal Facility Compliance Agreement with the Environmental Protection Agency (EPA). If the trial burn is successful, DOE and the EPA will develop a plan for additional milestones.	EM 10/20/90	Discussion: The Controlled Air Incinerator has undergone extensive safety and environmental upgrades to support converting the facility's mission from a research and development facility to an operational facility in support of treating both hazardous and mixed waste. The SWEIS will be used to develop a waste management strategy; analyzing impacts of incinerating operational waste could be an important element of that strategy. Initial Recommendation: Include treatment operation of the incinerator in SWEIS. DOE makes no recommendation whether work would continue to conduct a trial burn as required by the Federal Facility Compliance Agreement. DOE will continue to work with regulators and the public to determine the appropriate activities for the Controlled Air Incinerator.
Expansion of Area G, Radioactive Waste Disposal Site, TA–54. Proposal to expand an existing 63-acre low-level radioactive waste management area which is anticipated to reach capacity in 3 to 5 years. The original proposal was to expand by an additional 70 acres to provide an additional 20 years of disposal capability; a smaller 30-acre area is also considered, as well as a 5-acre area that would provide disposal capability for up to 8 years. There are no archeological sites in the 5-acre area.	EM 10/20/90	Discussion: The original proposal would provide long-term, large-scale expansion of the waste disposal area. Some expansion of LANL's waste handling capacity would be needed in 3 to 5 years to accommodate environmental restoration, D&D, and other operational waste. It is not clear at this time what the projected volumes of waste might be over the next 20 years. LANL is increasing waste minimization efforts and it is possible that site missions could change; the sitewide analysis will help develop projections of waste volume and type. The smaller, 5-acre proposal would allow for up to 8 years of additional disposal capacity in the event that it is needed while the sitewide analysis is being completed. If no expansion takes place prior to the SWEIS, it is possible that existing waste disposal areas may be filled prior to completing sitewide decisions. Initial Recommendation: Include in the SWEIS. If a compelling need can be shown for additional disposal capacity prior to completing sitewide decisions, DOE may, at a later time, propose a separate NEPA review to address those needs.

. TABLE 1.—RECOMMENDATIONS FOR ONGOING NEPA REVIEWS—Continued

Title, summary	DOE program sponsor/NEPA determ. date	Discussion, initial recommendation
Hazardous Waste Treatment Facility and Mixed Waste Receiving and Storage Facility, TA–63. Proposal to construct and operate two waste management facilities to repackage, stage and treat hazardous and mixed wastes which cannot be placed in land disposal areas. The two facilities would be connected actions because they would be located close together and they support each other; therefore the NEPA review has been combined. DOE has an initial milestone of 01/30/95 for completing the detailed design for the proposed Hazardous Waste Treatment Facility to comply with its Federal Facility Compliance Agreement with the EPA; the NEPA review must be completed prior to beginning the detailed design. The proposal includes using small-scale, self-contained portable "skids" to treat the waste.	EM 04/26/91	Discussion: The Hazardous Waste Treatment Facility is needed for on-site waste management and to help DOE meet compliance milestones regarding legacy waste. Delays in completing design and initiating construction could jeopardize meeting the Agreement. If this project is deferred until the SWEIS, the compliance milestone could not be met. The Mixed Waste Receiving and Storage Facility, while not tied to a specific compliance milestone, would assist DOE in meeting near-term site waste management goals. Although the NEPA determination was to analyze these two facilities together, the cumulative impacts of waste disposal operations would be analyzed in the SWEIS. Initial Recommendation: Proceed with EA.
High Explosives Wastewater Treatment Facility, TA–16. Proposal to construct and operate a wastewater treatment facility to treat wastewater containing trace amounts of high explosives waste. The project would include constructing a delivery pipeline and decontamination and demolition of an existing treatment facility. The project would minimize wastewater generation by eliminating 99 percent of current wastewater flows through a combination of wastewater elimination, recycle, and reuse. It would reduce the number of industrial wastewater outfalls from the 17 currently in use to 1. On 6/15/94 the EPA issued an Administrative Order to LANL requiring compliance with Clean Water Act permitting requirements. DOE has a milestone of 10/97 to start construction under its Federal Facility Compliance Agreement with the EPA.	EM 06/29/92	Discussion: DOE needs to address water pollution compliance independent of SWEIS analysis. If construction is not started by 10/97, DOE would not meet its compliance milestone and LANL would not meet the Administrative Order. To start construction by that date, design work must be completed; detailed design could not start until the NEPA review is completed. If the design work was deferred until after sitewide decisions, the schedule could not be met. The SWEIS is expected to result in a sitewide waste management strategy; this facility could be important to that strategy. Work to minimize in-plant waste and eliminate some wastewater outfalls would not influence, nor be influenced by, sitewide decisions. Initial Recommendation: DOE makes no recommendation at this time regarding proceeding with this NEPA review.
Mixed Waste Disposal Facility, TA–67. Proposed facility to treat and dispose of mixed (radioactive and hazardous) waste generated at LANL. The entire project would consist of up to 11 waste disposal cells and would hold up to 475,000 cubic yards of waste generated by environmental restoration work at LANL.	EM 07/13/93	Discussion: The EPA issued a Hazardous and Solid Waste Act Permit to LANL that requires LANL provide a list of solid waste management units. The workplans for cleanup of the units, to be submitted prior to the investigation phase, will contain schedules for completing the site investigation work. These schedules, once accepted by the EPA, will be legally enforceable milestones under the conditions described in the Permit. In addition, it is expected that voluntary corrective actions will be undertaken to remediate a majority of the sites during the site investigation phase. The facility would provide the capacity to safely treat and dispose of the waste expected to be generated by this program. The NEPA review must be completed before detailed designs are started. If the detailed design phase is delayed until the SWEIS is completed, the DOE and LANL will not be able to meet the cleanup schedules. In 1993, DOE conducted nine public meetings on the scope of the NEPA review of the entire project to allow the project milestones to be met while the SWEIS is under preparation. Under the Environmental Assessment currently being prepared, the facility would be constructed for the disposal of environmental restoration waste only. Discussions concerning the potential disposal of legacy and operational mixed waste will be part of the SWEIS environmental restoration and waste management strategy. The total projected volume of legacy and operational mixed waste would be less than one percent of the projected total annual waste volumes. Initial Recommendation: DOE makes no recommendation at this time regarding proceeding with this NEPA review. However, DOE proposes to proceed with the EA review for the environmental restoration waste only and make the draft EA available to stakeholders to assist in the decision making process. Include in the SWEIS the analysis of the disposal of legacy and operational mixed wastes.

TABLE 1.—RECOMMENDATIONS FOR ONGOING NEPA REVIEWS—Continued

Title, summary	DOE program sponsor/NEPA determ. date	Discussion, initial recommendation
National Biomedical Tracer Facility. Proposal to locate, construct, and operate a facility at LANL to use accelerator technology to produce radioisotopes for medical research and applications. The facility would house a proton accelerator, laboratories, and office space.	none 12/17/93	Discussion: DOE has not yet determined a sponsor or funding profiles for this project. Initial Recommendation: Defer until after SWEIS.

Abbreviations used in Table:
DOE: Department of Energy; DP: DOE Defense Programs; EA: Environmental Assessment; EM: DOE Environmental Management; EPA: Environmental Protection Agency; LANL: Los Alamos National Laboratory; SWEIS: Sitewide Environmental Impact Statement; TA: Technical Area.

TABLE 2.—PLANNED NEPA REVIEWS RECOMMENDED TO PROCEED PRIOR TO COMPLETION OF SWEIS

Title, summary	DOE program sponsor	Discussion
Laundry. DOE is considering proposing to locate, construct, and operate an on-site facility to launder anti-contamination clothing which may potentially be contaminated with radioactive materials from ongoing activities.	DP	Currently, laundry is done in an off-site facility. It is possible that an on-site facility would be more efficient. This is a small-scale project that would not influence, nor be influenced by, sitewide decisions. If decisions on the laundry are deferred until after the SWEIS, DOE would continue to use an off-site contract laundry.
Receipt and Storage of Nuclear Material for Criticality Experiment, TA–18. DOE is considering proposing to ship nuclear material from various DOE sites to the Los Alamos Critical Experiments Facility (LACEF), and store the material at that facility, until it is needed for criticality experiments or training exercises. The experiments or training exercises would be covered by separate NEPA review. DOE currently has about 3,000 unirradiated low-enriched uranium nuclear reactor fuel rods at its Hanford Plant, Richland, Washington; about 30 kilograms of unirradiated high-enriched uranium particle bed fuel at its Sandia National Laboratory, Albuquerque, New Mexico; and about 250 kilograms of high-enriched uranium reactor fuel from the critical mass assembly at its Health Physics Research Reactor, Oak Ridge National Laboratory, Oak Ridge, Tennessee. The LACEF is the only remaining DOE facility where criticality experiments are routinely conducted. In response to the 1993 Defense Nuclear Facilities Safety Board recommendation regarding critical facilities infrastructure, DOE is considering consolidating unique critical mass assemblies at the LACEF in order to continue to reliably analyze the criticality of nuclear systems.	DP	The DOE sites listed no longer have any programmatic need for this material. Hanford can no longer provide long-term storage due to clean-up operations now going on; if not moved off-site, it will be disposed of by burial at Hanford. The Sandia material is unique and was developed at significant taxpayer expense; the Department of Defense might fund shipment to LANL if it can be accomplished in the near-term. The Oak Ridge material has been used as an important calibrated radiation source for accident simulation and radiation dosimetry; this device is the only one in this country which has been characterized to make the dosimetric measurements essential for analyzing accident conditions and other radiation experiments. LANL has an ongoing criticality experiments and safety training program and can make use of this material in the future. If decisions on receiving and storing the material are deferred until the SWEIS, it is possible that storage, shipping or funding constraints would make the material unavailable to LANL. Decisions regarding the long-term use of the LACEF would be made in the SWEIS as part of the sitewide nuclear materials storage and handling strategy
Hazardous, Low-Level Radioactive, and Mixed Waste Treatment Skids. DOE uses portable, self-contained treatment units, or "skids," to treat hazardous, low-level radioactive, and mixed (radioactive and hazardous) waste. In addition to the "skids" specifically proposed as part of the Hazardous Waste Treatment Facility, DOE may require additional "skids" to treat waste at various locations at LANL.	EM	The current Hazardous Waste Treatment Facility and Mixed Waste Receiving and Storage Facility proposal includes the use of certain "skids" specifically for treating waste at these facilities. DOE may need to use additional "skids" to treat on-site waste at various locations at LANL in order to meet the schedule for DOE's Federal Facility Compliance Agreement with the Environmental Protection Agency. The additional "skids" would be designed, constructed, and possibly operated prior to completion of the proposed Hazardous Waste Treatment Facility and prior to completion of the SWEIS to meet the Agreement schedule. If the project is deferred until the SWEIS, the "skids" could not be designed, constructed or used in the near-term.

TABLE 2.—PLANNED NEPA REVIEWS RECOMMENDED TO PROCEED PRIOR TO COMPLETION OF SWEIS—Continued

Title, summary	DOE program sponsor	Discussion
Replacement Waste Compactor TA–54. DOE is considering proposing to replace an existing 50-ton waste compactor at the low-level radioactive waste management area at Area G, TA–54, with a 200-ton compactor in a new building adjacent to the existing facility. Initially, DOE considered including the analysis of this proposal with the NEPA review for the proposal to expand Area G, TA–54; however, the NEPA determination for that proposal did not include the compactor. The existing compactor is not operating. The proposed replacement compactor would increase the operating life of the existing waste disposal area by increasing the efficiency of waste minimization practices, including reducing the volume of waste for disposal and eliminating void spaces between waste containers. This, in turn, would postpone the need to expand the existing waste site.	EM	Discussion: This is a small-scale project which would increase operational efficiency and reduce waste volume. This, in turn, would extend the useful life of the existing disposal area. If installing the proposed compactor is deferred until the SWEIS, the existing compactor would not be replaced and inefficient waste disposal practices would continue in the existing area. A decision to install and operate the compactor would not influence, nor be influenced by, sitewide decisions.
Radioisotope Heat Source Fabrication, CMR, TA–3 and TA–55 (Revision to 1991 EA). Plutonium-238 is used as a long-term, reliable source of heat that is converted to electricity to power spacecraft. In 1991 DOE completed an EA for the Cassini mission and the Comet Rendezvous Asteroid Flyby (CRAF); CRAF was later canceled. The work at LANL to support the Cassini mission is ongoing. The project to build more units for other uses may be extended at LANL.	NE	The 1991 EA analyzed using LANL facilities at TA–55 to support radioisotope thermoelectric generator (RTG) work for the space mission. The proposal may be revised to allow for RTG work for other missions, beyond the timeframe included in the 1991 EA, and possibly using facilities at the Chemistry and Metallurgy Research Building in addition to TA–55. If so, the 1991 EA would be revised to provide the NEPA review for the revised mission. If the revised NEPA review were to proceed, DOE could make early decisions on whether to use LANL facilities for the additional RTG work. This would be necessary if, prior to completing sitewide decisions, DOE needed to determine where the additional RTG work would be done in the near-term in order to meet mission schedules. If the project is deferred until the SWEIS, it is possible that DOE may not be able to deliver heat sources to meet mission needs. Any future long-term uses of LANL facilities for such missions, and long-term strategy for storing and handling plutonium-238, will be included in the SWEIS.

Abbreviations used in Table:
DOE: Department of Energy; DP: DOE Defense Programs; EA: Environmental Assessment; EM: DOE Environmental Management; EPA: Environmental Protection Agency; LANL: Los Alamos National Laboratory; SWEIS: Sitewide Environmental Impact Statement; TA: Technical Area.

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Preparation of an Environmental Impact Statement for the Nevada Test Site and Other Off-Site Test Locations Within the State of Nevada

AGENCY: U.S. Department of Energy (DOE).

ACTION: Notice of Intent.

SUMMARY: In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 *et seq.*), the Council on Environmental Quality regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500–1508), and the Department's Implementing Procedures (10 CFR Part 1021), the DOE announces its intent to prepare a Site-wide Environmental Impact Statement (EIS) for the Nevada Test Site and other off-site test locations within the State of Nevada. The purpose of this Notice is to invite the participation of Federal, state, and local agencies, affected Indian tribes, and other interested persons in the process that DOE will follow to comply with NEPA, and to solicit public comments on the proposed scope and content of the Nevada Test Site EIS.

In order to meet present and potential future mission responsibilities at the Nevada Test Site, the Department proposes to evaluate resource management alternatives for the Nevada Test Site which would support current and future defense related missions, research and development, waste management, environmental restoration, infrastructure maintenance, and facility upgrades and alternative uses over the next 5–10 years. This Site-wide EIS will address numerous issues, including, without limitation: (1) environmental restoration and other Departmental activities at the Nevada Test Site and at off-site locations in the State of Nevada where DOE conducted nuclear experiments, which include the Project Shoal Area, Central Nevada Test Area, Tonopah Test Range, and portions of the Nellis Air Force Range; and (2) transportation and disposal of wastes, which are generated on and off-site of the Nevada Test Site.

DATES: DOE invites and encourages the general public, other government agencies, and all other interested parties to comment on the appropriate scope and content of the EIS for the Nevada Test Site and off-site locations within the State of Nevada to ensure that all relevant environmental issues and alternatives are addressed. Public scoping meetings are discussed below in the **SUPPLEMENTARY INFORMATION** section. The public scoping period will continue until September 30, 1994. All comments and suggestions received or postmarked by that date, whether written, oral, submitted directly to the Department, or presented during a scoping meeting, will be given equal consideration in defining the scope of this Site-wide EIS and the issues to be discussed. Comments received or postmarked after September 30, 1994, will be considered to the extent practicable. In addition, the Department is committed to providing opportunities for the involvement of interested individuals

and groups in this and other Department planning activities outside of the formal scoping process on this EIS.

ADDRESSES: Written comments on the scope of the Site-wide EIS should be directed to: Donald R. Elle, Director, Environmental Protection Division, U.S. Department of Energy, Nevada Operations Office, P.O. Box 14459, Las Vegas, NV 89114.

Copies of written comments, transcripts of oral comments, and copies of the EIS Implementation Plan will be prepared and retained by the Department for inspection by the public at the following locations:

1. DOE Public Reading Room, 2753 S. Highland Ave., Las Vegas, NV 89109
2. Las Vegas Public Library, 833 N. Las Vegas Blvd., Las Vegas, NV 89101
3. Carson City Public Library, 900 N. Roop St., Carson City, NV 89701
4. Tonopah Public Library, 171 Central Street, Tonopah, NV 89049
5. Doris Shirkey Library, 2101 E. Calvada Blvd., Pahrump, NV 89041
6. Caliente Branch Library, 100 Depot Avenue, Caliente, NV 89008
7. University of Nevada, Reno, Noble H. Getchell Library, Reno, NV 89557
8. University of Nevada, Las Vegas, James Dickenson Library, 4505 S. Maryland Parkway, Las Vegas, NV 89154
9. Freedom of Information Reading Room, Forrestal Bldg, 1000 Independence Ave, S.W., Washington, DC 20585
10. Fallon Public Library, Churchill County Library, 553 S. Main, Fallon, NV 89406–3387
11. Washington County Library, 50 S. Main, St. George, UT 84770

FOR FURTHER INFORMATION CONTACT: For further information please contact: Donald R. Elle, Director, Environmental Protection Division, U.S. Department of Energy, P.O. Box 14459, Las Vegas, Nevada 89114, (702) 794–1550.

For information on the Department's NEPA process, please contact: Ms. Carol Borgstrom, Director, Office of NEPA Oversight, U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585, (202) 586–4600 or leave a message at (800) 472–2756.

SUPPLEMENTARY INFORMATION:

Background

The Nevada Test Site, near Las Vegas, Nevada, is the site at which the Department's Nevada Operations Office fulfills its primary responsibilities to:

* Maintain a state of readiness to conduct underground nuclear testing.
* Fulfill those activities to maintain the nation's stockpile of nuclear weapons in a safe and secure manner and fulfill other national security related missions.
* Provide an ongoing waste management program covering all wastes generated both on-site and from other DOE-approved facilities across the U.S.
* Perform site characterization and environmental restoration activities required to minimize or eliminate the impacts of past operations.
* Supervise operations of non-DOE entities at the Liquefied Gaseous Fuels Spill Test Facility to perform research and demonstrations related to the safety aspects of hazardous chemicals and liquefied gaseous fuels.
* Serve as an outdoor laboratory where scientists and students can conduct research on environmental issues as part of the DOE National Environmental Research Park Network.
* Support the Threshold Test Ban Treaty and the Peaceful Nuclear Explosives Treaty verification mission along with an expanding role in supporting the ongoing Comprehensive Test Ban Treaty negotiations.
* Provide the capability to respond to nuclear emergencies, including use of radiation detection systems for search and identification of lost or stolen nuclear weapons and special nuclear materials; exercises related to nuclear bomb threats and to radiation dispersal threats.
* Demonstrate the capability to provide alternative energy sources to meet power needs for the Southwestern United States. This would include research activities in solar and other alternative energy source technologies.

The Department's responsibilities are mandated by statute, Presidential direction, and Congressional authorization and appropriation. Other activities may be directed by regulatory mandates identified in compliance agreements or orders or other enforceable documents.

The Nevada Test Site occupies 1,350 square miles in southern Nevada, and is located approximately 65 miles northwest of Las Vegas. The Nevada Test Site is bordered to the north, west, and east by the Nellis Air Force Range, and on the south by Bureau of Land Management-administered lands. To the east, the Nevada Test Site shares a nearly contiguous border with lands managed by the U.S. Fish and Wildlife Service for the Desert Game Range. The western half of the Game Range is also used by the U.S. Air Force, which shares a contiguous boundary with the Nevada Test Site. The Nevada Test Site is a remote, secure facility for conducting underground testing of nuclear weapons and for evaluating the effects of nuclear weapons on military communications systems, electronics, satellites, sensors, and other materials. Since the signing of the Threshold Test Ban Treaty in 1974, it has been the only site used by the United States for underground nuclear weapons testing. In September 1992, Congress, within the framework of the Threshold Test Ban Treaty, imposed a nine-month moratorium on underground nuclear testing. President Clinton extended the moratorium in July 1993 for an additional 15 months and subsequently, in March 1994, extended the moratorium through September 1995.

Existing land use on the Nevada Test Site falls into four general categories: Testing Areas; Reserved Areas; Industrial/Research Areas; and Waste Management Areas. Most of the work on the Nevada Test Site has been and continues to be related to national defense, with a growing emphasis on environmental restoration and waste management programs. Changing world conditions and national policies have reduced the need for testing programs, and other DOE and non-DOE activities are now being considered for siting at the Nevada Test Site. A map showing existing land use at the Nevada Test Site and the locations of the off-site tests is available on request to Donald R. Elle at the above address.

The Nevada Test Site is a unique facility. It is a large remote area with tightly controlled access, with a substantial infrastructure, and the capability to conduct tests with hazardous and radioactive materials. The southwest region of the Nevada Test Site provides support for nonweapons and nonnuclear weapons programs and for short term activities such as the nuclear weapons accident exercises conducted by the Nuclear Emergency Search Team. In 1993, DOE designated the Nevada Test Site as a National Environmental Research Park. The Research Park is available for use by the scientific community as an outdoor laboratory for research on the effects of human activities on the desert ecosystem. Land not used for mission or other purposes has been designated as reserved areas, available for future development. The northern part of the Nevada Test Site is reserved as an underground nuclear weapons testing area. Nuclear test locations are at Yucca Flat, Pahute Mesa, Rainer Mesa, and Buckboard Mesa.

Waste management activities have been ongoing at the Nevada Test Site since 1952. For ease of identification, the Nevada Test Site has been divided into numbered geographic "Areas". Waste Operations are conducted in several areas. Sanitary and solid waste are disposed of in Areas 23 and 9. Hydrocarbon-contaminated soils are disposed of in a permitted landfill in

Area 6. Radioactive waste management sites are located in Areas 3 and 5. Area 5 is also the location of a 90-day hazardous waste accumulation site. Waste streams continue to be generated, stored, and disposed of at the Nevada Test Site. Radioactive wastes are also shipped to the Nevada Test Site for disposal from other Department and Department-authorized sites. Waste management operations at Nevada Test Site include: Accumulation of hazardous waste; disposal of low-level radioactive waste including some classified waste; management of mixed radioactive and hazardous waste; storage of mixed transuranic waste; and disposal of sanitary waste.

Mixed transuranic waste is stored on a pad at Area 5 under conditions set forth in the July 1992 Settlement Agreement between DOE and the State of Nevada. A consent agreement signed by DOE and the Nevada Division of Environmental Protection in 1994 allows storage at Area 5 of mixed waste generated during characterization activities.

Through 1994 there have been 1054 nuclear tests conducted by the United States, 928 of which were conducted on the Nevada Test Site. Defense research and weapons test verification activities were conducted at other test locations in Nevada. Nuclear devices were detonated underground at the Project Shoal Area and the Central Nevada Test Area. From 1957 to 1963, many safety tests using special nuclear materials and chemical explosives were conducted at sites on the Nevada Test Site, Nellis Air Force Range, and Tonopah Test Range to test the safety of nuclear weapons in accident situations. These tests have resulted in the release of radioactive materials and surface contamination over large areas.

The Yucca Mountain site is located on the southwestern boundary of the Nevada Test Site. In the 1987 amendments to the Nuclear Waste Policy Act (NWPA), Congress directed DOE to characterize the Yucca Mountain site for possible development of a geologic repository for disposal of spent nuclear fuel and high level nuclear waste. Prior to passage of the 1987 amendments, DOE had prepared an environmental assessment (EA) which included an analysis of the effects of site characterization activities at Yucca Mountain (DOE/RW–0073, May 1986). If DOE ultimately recommends approval of the Yucca Mountain site to the President, that recommendation must be accompanied by an EIS prepared under the specific provisions of the NWPA. All activities regarding the characterization of the Yucca Mountain site, and any eventual construction and operation of a repository, including environmental review, are regulated by the process prescribed in the NWPA. Therefore, the Nevada Test Site EIS will address ongoing Yucca Mountain site characterization activities only as they relate to the cumulative impacts of activities on the Nevada Test Site during the period covered by the EIS, using the Yucca Mountain EA as a baseline.

Public lands administered by the Bureau of Land Management surround the Nevada Test Site and Nellis Air Force Range on all sides. The Tonopah Test Range is located in the northwestern portion of the Nellis Air Force Range, and is operated by Sandia National Laboratories, under contract with the DOE Albuquerque Operations Office, and through a Memorandum of Agreement between the Department of Energy's Albuquerque and Nevada Operations Offices. The Central Nevada Test Area is located approximately 60 miles east of Tonopah between Warm Springs and Currant (approximately 160 miles north of Las Vegas), and the Project Shoal Area is located approximately 30 miles southeast of Fallon (approximately 90 miles east of Reno and 285 miles northwest of Las Vegas).

The Nevada Test Site, Nellis Air Force Range, and Tonopah Test Range each have restricted-access areas that are not open to the public for purposes such as agriculture, mining, land disposal of wastes, or mineral leasing. With the exception of very limited special hunting access to a portion of the Nellis Air Force Range, these sites are not open for recreational use. The Project Shoal Area and the Central Nevada Test Area are not restricted-access areas and are open for general public uses including grazing and recreation, but not to mining.

Public roads link the Project Shoal Area and the Central Nevada Test Area with the Nevada Test Site and these may be used to ship wastes to the Nevada Test Site. In addition, some public roads may be used to transport waste from Nellis Air Force Range and Tonopah Test Range to the waste management locations on the Nevada Test Site or elsewhere. Public roads are also used to ship low level radioactive waste from other DOE sites to the Nevada Test Site and to ship hazardous waste from the Nevada Test Site to permitted disposal facilities.

Preliminary Identification of Alternatives

The proposed action is to develop a resource management plan for the Nevada Test Site. The Department of Energy needs a site resource management plan that would allow it to continue its missions in a way that minimizes or avoids environmental impacts. A preliminary set of resource management alternatives for evaluation in the EIS has been identified below. The final set of alternatives and issues to be considered in the EIS will reflect consideration of the public input received during the scoping period.

No Action

Under the no action alternative, existing missions and operations would continue at the present level. Environmental restoration activities would continue at the Nevada Test Site and at off-site test locations within the State of Nevada. Off-site test location activities would be consistent with the applicable land use plans of the controlling agency. This alternative includes the potential to resume underground nuclear testing and conducting other nuclear weapon related experiments at the Nevada Test Site. Expanded use of the Nevada Test Site for defense-related experiments, alternative energy source technology development, non- or counter-proliferation research and development and environmental technology development would not be pursued. Waste management activities would continue to support existing DOE missions and operations in the same manner and degree as at present and in the recent past. Continuing activities at the Area 3 and 5 radioactive waste management sites include: the disposal of low-level radioactive wastes generated from both on-site activities and off-site DOE and Department of Defense facilities such as the Fernald Field Office near Cincinnati, Ohio; the Rocky Flats Environmental Technology Site (formerly the Rocky Flats Plant), Golden, Colorado; the Amarillo Area Office (Pantex), Amarillo, Texas; and the Aberdeen Proving Grounds, Aberdeen, Maryland. Other continuing activities include storage of transuranic and other wastes, accumulation of hazardous wastes prior to off-site shipment for disposal, and disposal of on-site generated mixed waste that meets the Resource Conservation and Recovery Act (RCRA) land disposal restriction criteria. Groundwater characterization would continue with the associated waste management activities. This alternative is intended to encompass current operations, including waste management and technology development operations without the improvements or expansion

which would occur under the expanded use alternative.

Expanded Use

Under this alternative, maximum use would be made of the Nevada Test Site in support of national programs of both a defense and non-defense nature. National Defense activities could include a resumption of underground nuclear testing with the required support activities; conducting other nuclear weapons related experiments; the construction and operation of various types of simulator facilities and other experimental test facilities; tritium production; plutonium storage and disposition; nuclear weapons storage and disassembly and similar activities that could be best conducted at a remote site. The site could also be used for various exercises and technology development aimed at countering nuclear terrorism or proliferation activities. Non-defense programs could include the study of alternative energy sources including the construction and operation of various solar energy facilities that would demonstrate the effectiveness of the technologies; expanded use of the Liquefied Gaseous Fuels Spill Test Facility; and increased use of the site as an Environmental Research Park.

This alternative would include continuation of on-going waste management activities, planned waste management and environmental restoration activities, and enhanced usage of the Site for waste management activities. In addition to on-going activities, planned waste management activities proposed for the Area 5 radioactive waste management site include construction and operation of: certification facilities for various types of waste, expanded mixed waste disposal facilities for on- and off-site generated mixed waste, increased capacity for hazardous and mixed waste storage, waste treatment facilities, closure barriers or caps, and infrastructure improvements.

Enhanced usage would include, for example, options to utilize the Nevada Test Site as specified in other DOE and Department of Defense NEPA documents (such as the Environmental Restoration and Waste Management Programmatic EIS which, among other things, addresses a programmatic alternative under which all DOE low-level radioactive wastes would be disposed of at the Nevada Test Site); regional treatment of mixed waste in accordance with the Federal Facility Compliance Act; and disposal of mixed and transuranic wastes.

Other Alternatives

The Department will consider other resource management alternatives, i.e., variations of the no action alternative that would involve no new projects or a phased reduction in current operations, and no shipments or reduced shipments of off-site waste to the Nevada Test Site. The Department invites public comment on the above, and suggestions regarding other resource management alternatives that should be considered.

Preliminary Identification of Environmental Issues

The following issues have been tentatively identified for analysis in this EIS. This list is intended to facilitate public comment on the scope of the EIS. It is not intended to be all-inclusive, nor is it intended to be a predetermination of impacts.

1. Potential effects on the public and on-site workers from releases of radiological and hazardous materials during normal operations and from reasonably foreseeable accidents.
2. Potential effects on air and water quality and other environmental consequences of normal operations and reasonable foreseeable accidents.
3. Potential cumulative effects from proposed actions and other past, present and reasonably foreseeable future actions.
4. Potential environmental effects, including human health, economic and social effects on surrounding communities, including minority communities and low-income communities.
5. Potential effects on sensitive species, economically and recreationally important species, floodplains, wetlands, and historic and archaeological resources, including paleontological sites and Native American resources.
6. Potential environmental effects of future Nevada Test Site facility decontamination and decommissioning activities.
7. Potential effects of near- and long-term waste management of off-site generated waste, and environmental restoration activities.
8. Potential unavoidable adverse environmental impacts.
9. Short-term uses of the environment versus long-term productivity.
10. Potential irretrievable and irreversible commitments of resources.

Related Documentation

The Department will prepare transcripts of the oral comments received during the scoping workshops. The records of all comments, both oral and written, received during the scoping period will be made available for public review in the reading rooms listed above. Additional background documents and references identified as pertinent during the EIS process will also be made available in the reading rooms.

The following is a list of forthcoming NEPA documentation related to this EIS that have the potential for affecting its scope by inclusion of the Nevada Test Site as an alternative site for the action being considered:

(a) Reconfiguration Programmatic EIS—On July 23, 1993, the Department published a revised Notice of Intent (56 FR 39528) to prepare a Programmatic EIS for reconfiguration of its nuclear weapons complex due to nuclear weapons stockpile reductions. The Department currently is considering how the scope of this Programmatic EIS should be revised further to reflect more recent budget and stockpile reduction decisions. The Nevada Test Site is a potential alternative site in this EIS.

(b) The Fissile Materials Storage and Disposition Programmatic EIS will address the long-term storage of all fissile nuclear materials and disposition of surplus fissile nuclear materials. The Notice of Intent announcing the preparation of this EIS was published in the **Federal Register** (59 FR 31985), on June 21, 1994.

(c) The Environmental Restoration and Waste Management Programmatic EIS will address waste management alternatives for existing and proposed actions and DOE complex-wide issues associated with long-term waste management policies and practices. In this Programmatic EIS, the Department is evaluating the Nevada Test Site as an alternative site for managing DOE wastes. An Implementation Plan for this Programmatic EIS was issued in January 1994. The final Programmatic EIS is scheduled to be issued in 1995.

(d) The Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs EIS analyzes the potential environmental consequences of alternatives to the transportation, receipt, processing, and storage of the Department's spent nuclear fuel. The Nevada Test Site is being evaluated as a potential spent nuclear fuel management site in this analysis, but the Department has stated that the Nevada Test Site is not the preferred alternative;

(e) The Proposed Policy for the Acceptance of United States Origin Foreign Research Reactor Spent Nuclear

Fuel EIS will address the potential environmental impacts of the proposed policy renewal and its implementation. Under a renewed policy, the United States could accept up to 15,000 foreign research reactor spent fuel elements over a 10 to 15 year period. The Nevada Test Site is a potential storage site in this EIS.

(f) The Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapons Components EIS will address the potential environmental impacts of the continued operation of the Pantex Plant. These include near- to mid-term foreseeable activities and the nuclear component storage activities at other Department sites associated with nuclear weapon disassembly at the Pantex Plant, over the next 5 to 10 years. The Nevada Test Site is being considered as a potential site under the relocation of operations alternative.

(g) The environmental restoration program at the Fernald Environmental Management project is divided into five operable units. For each operable unit, a feasibility study/proposed plan is being prepared to provide a detailed evaluation of the leading remedial alternative for each area of contamination. Nevada Test Site may be identified as the preferred candidate disposal site for portions of the low level waste generated during cleanup activities for each operable unit. The current schedule for the Department to submit the feasibility study/proposed plans to the U.S. Environmental Protection Agency for approval is as follows: Operable Unit 1 (Waste Pits), submitted July 1994; Operable Unit 2 (Solid Waste Units), to be submitted August 1994; Operable Unit 3 (Production Area), to be submitted November 1996; Operable Unit 4 (Silos), submitted December 1993; and Operable Unit 5 (Environmental Media), to be submitted in February 1995.

Cooperating Agencies

The preparation of this Site-wide EIS will require the participation of several Federal agencies, some of which may be identified as cooperating agencies under the NEPA process. These include the Air Force, Department of the Interior (Bureau of Land Management and Fish and Wildlife Service), and the Defense Nuclear Agency.

Public Scoping Meetings

Public scoping meetings to provide and discuss information, and receive oral comments on the scope of the EIS will be held in the States of Nevada and Utah at locations near the Nevada Test Site which may be affected by potential decisions and implementation.

The dates and locations for the public scoping meetings are listed below. All meetings are scheduled to begin at 6:30 p.m.

September 7, 1994
Fallon Convention Center
100 Campus Way
Fallon, Nevada
September 8, 1994
Carson City Community Center
851 East William Street
Carson City, Nevada
September 13, 1994
Dixie Center Convention Facilities
425 South 700 East
St. George, Utah
September 15, 1994
Tonopah Convention Center
301 Brougher
Tonopah, Nevada
September 20, 1994
Cashman Field Convention Center
850 Las Vegas Blvd, North
Las Vegas, Nevada
September 21, 1994
Bob Ruud Community Center
150 North Highway 160
Pahrump, Nevada
September 22, 1994
Caliente Youth Center
Highway 93
Caliente, Nevada

Oral Comments

All interested parties are invited to record their comments or suggestions concerning this EIS or their request to be placed on the distribution list by calling the Nevada Test Site EIS Hotline at 1–800–405–1140 or 702–794–1550. The hotline will give instructions on how to record comments or requests.

Written Comments

Written comments or suggestions to assist the Department in identifying significant environmental issues and the appropriate scope of the EIS, questions concerning the Nevada Test Site or other involved Department sites, requests for speaking times, requests for copies of the EIS Implementation Plan, and requests to be placed on the distribution list should be directed to: Donald R. Elle, Director, Environmental Protection Division, U.S. Department of Energy, Environmental Impact Statement, P.O. Box 14459, Las Vegas, NV 89114.

Public Meetings Registration and Format

Oral and written comments may be presented at the public scoping meetings. Persons desiring to speak at any of these meetings should register by calling the Nevada Test Site EIS Hotline by 3:00 p.m., Pacific Time, two working days in advance of the scoping meeting; or by writing to the Director of the Environmental Protection Division at the above address. Persons wishing to speak that have not registered in advance may register at the entrance of the meeting room. Individuals speaking on behalf of an organization should identify the organization represented.

In order to solicit individual viewpoints and facilitate interactive communication between participants and representatives of the Department, opportunities will be provided at the scoping meetings for questions and informal discussions regarding the issues to be addressed in this EIS.

Subsequent Document Preparation

After the completion of the public scoping process, the Department will prepare an EIS Implementation Plan and make it available to the public upon request and place it in the public reading rooms. The Plan will record the results of the scoping process and define the alternatives and issues that the Department will evaluate in this EIS. The Plan will also include a schedule for completing the Draft EIS. Availability of the Draft EIS will be announced in the **Federal Register**. The Department will solicit comments from the public, organizations, and other agencies on the Draft EIS, and will consider all comments in its preparation of the Final EIS.

Issued in Washington, DC this 4th day of August, 1994.

Peter N. Brush,

Acting Assistant Secretary, Environment, Safety and Health.

[FR Doc. 94–19531 Filed 8–9–94; 8:45 am]

BILLING CODE 6450–01–P

Financial Assistance Award: Natural Resources Defense Council

AGENCY: Department of Energy.

ACTION: Notice of Intent.

SUMMARY: The U.S. Department of Energy announces that pursuant to 10 CFR 600.6(a)(5) it is making a discretionary financial assistance award based on the criteria set forth at 10 CFR 600.7(b)(2)(i)(B) under Grant Number DE-FG01–94CE41130 to the Natural Resources Defense Council. The proposed grant will provide funding in the estimated amount of $100,000 by the Department of Energy for the purpose of developing a pollution prevention program.

SUPPLEMENTARY INFORMATION: The Department of Energy has determined in accordance with 10 CFR 600.7(b)(2)(i)(H) that a noncompetitive award based on a proposal, which is

meritorious based on the Department's general evaluation, is justified. The activity is being conducted by the applicant using its own resources or those donated or provide by third parties, however, DOE support of that activity would enhance the public benefits to be derived and DOE knows of no other entity which is conducting or is planning to conduct such activity. The proposed grant will provide funding in the estimated amount of $100,000. The proposed project is fully compatible with the mission of the Office of Industrial Technology, the sponsoring office. This project will allow DOE to develop a regulatory framework, implemented on a pilot basis, that will prevent pollution and reduce emissions generated in the industrial sector; and it provides an opportunity to make further progress toward environmental protection, foster industrial innovation to prevent pollution, and increase the effectiveness of environmental programs.

FOR FURTHER INFORMATION CONTACT: Please write the U.S. Department of Energy, Office of Placement and Administration, ATTN: Rose Mason, HR–531.23, 1000 Independence Ave., S.W., Washington, D.C. 20585.

The anticipated term of the proposed grant is 12 months from the date of award.

Issued in Washington, D.C. on August 4, 1994.

Richard G. Lewis,

Contracting Officer, Office of Placement and Administration.

[FR Doc. 94–19533 Filed 8–9–94; 8:45 am]

BILLING CODE 6450–01–P

Federal Energy Regulatory Commission

[Docket No. CP94–686–000., et al.]

National Fuel Gas Supply Corp., et al.; Natural Gas Certificate Filings

August 3, 1994.

Take notice that the following filings have been made with the Commission:

1. National Fuel Gas Supply Corporation

[Docket No. CP94–686–000]

Take notice that on July 27, 1994, National Fuel Gas Supply Corporation (National Fuel Gas Supply), 10 Lafayette Square, Buffalo, New York, 14203, filed in Docket No. CP94–686–000 a request pursuant to §§ 157.205 and 157.212 of the Regulations under the Natural Gas Act for authorization to construct and operate delivery tap facilities to provide service to National Fuel Gas Distribution Corporation (National Fuel Gas Distribution), under the certificate issued in Docket No. CP83–4–000, pursuant to Section 7 of the Natural Gas Act, all as more fully set forth in the request which is on file with the Commission and open to public inspection.

National Fuel Gas Supply states that the proposed delivery point will be located in Summit Township, Erie County, Pennsylvania, and will provide for general residential use by National Fuel Gas Distribution customers in Erie County. National Fuel Gas Supply estimates that the cost of constructing the proposed facilities is $90,000.

Comment date: September 19, 1994, in accordance with Standard Paragraph G at the end of this notice.

2. Williston Basin Interstate Pipeline Company

[Docket No. CP94–670–000]

Take notice that on July 20, 1994, Williston Basin Interstate Pipeline Company (Williston Basin), 200 North Third Street, Suite 300, Bismarck, North Dakota 58501, filed in Docket No. CP94–670–000 a request pursuant to §§ 157.205 and 157.211 of the Commission's Regulations under the Natural Gas Act for authorization to construct and operate a new metering station and associated appurtenant facilities for use in delivering transportation service gas to facilities owned by Prairielands Energy Marketing, Inc. for ultimate use by a new natural gas end-use customer at Velva, North Dakota, under its blanket certificate issued in Docket Nos. CP83–1–000, *et al.*, all as more fully set forth in the request which is on file with the Commission and open to public inspection.

Williston Basin states that the proposed facilities will be located on existing pipeline right-of-way and will consist of a fence, a small building, a meter and miscellaneous regulators, gauges and valves. According to Williston Basin the estimated cost of the facilities as proposed is $87,300. Williston Basin further states that the addition of the proposed facilities will have no significant effect on Williston Basin's peak day or annual requirements and that capacity exists on the Williston Basin system to serve this new natural gas market.

Comment date: September 19, 1994, in accordance with Standard Paragraph G at the end of this notice.

Standard Paragraphs

G. Any person or the Commission's staff may, within 45 days after issuance of the instant notice by the Commission, file pursuant to Rule 214 of the Commission's Procedural Rules (18 CFR 385.214) a motion to intervene or notice of intervention and pursuant to § 157.205 of the Regulations under the Natural Gas Act (18 CFR 157.205) a protest to the request. If no protest is filed within the time allowed therefor, the proposed activity shall be deemed to be authorized effective the day after the time allowed for filing a protest. If a protest is filed and not withdrawn within 30 days after the time allowed for filing a protest, the instant request shall be treated as an application for authorization pursuant to Section 7 of the Natural Gas Act.

Linwood A. Watson, Jr.,

Acting Secretary.

[FR Doc. 94–19457 Filed 8–9–94; 8:45 am]

BILLING CODE 6717–01–P

[Docket No. RP94–339–000]

Petal Gas Storage Co. Proposed Changes in FERC Gas Tariff

August 3, 1994.

Take notice that on July 29, 1994, Petal Gas Storage Company, (Petal) tendered for filing proposed changes to its FERC Gas Tariff, Original Volume No. 1, the following revised tariff sheets, with an effective date of September 1, 1994:

First Revised Sheet No. 4
First Revised Sheet No. 6
First Revised Sheet No. 50
First Revised Sheet No. 51
First Revised Sheet No. 52
First Revised Sheet No. 53
First Revised Sheet No. 54
First Revised Sheet No. 102
First Revised Sheet No. 113

Petal states that the proposed changes are intended to allow Petal to offer a more competitive interruptible storage service. Petal proposes to offer flexible interruptible storage service with both time periods and rate negotiable.

Petal states that the rates would be charged on either a reservation fee or volumetric basis. Firm customers would be allowed to release capacity to pre-arranged replacement customers with no bid period, provided the release is for a 1 day to 29 day period.

Petal states that copies of the filing were served on Petal's firm customers.

Any person desiring to be heard or to protest said filing should file a petition to intervene or protest with the Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426, in accordance with Rules 214 and 211 of the Commission's Rules of Practice and Procedure (18 CFR 385.214 and 385.211). All such petitions

or protests must be filed on or before August 10, 1994. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a petition to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Linwood A. Watson, Jr.,

Acting Secretary.

[FR Doc. 94–19527 Filed 8–9–94; 8:45 am]

BILLING CODE 6717–01–M

[Docket Nos. RS92–45–000, RP94–87–000, et al., RP94–346–000, and RP94–346–004]

Natural Gas Pipeline Company of America; Redocketing Filings and Compliance Filing and Establishment of Restricted Service List

August 4, 1994.

Take notice that on July 19, 1994, Natural Gas Pipeline Company of America (Natural) filed revised tariff sheets to be a part of its FERC Gas Tariff, Sixth Revised Volume No. 1 (Tariff), to be effective September 1, 1994. Natural's filing was originally docketed in Docket No. RS92–45–018, and is being redocketed as Docket No. RP94–346–004.

Natural states that the purpose of the filing is to implement the Stipulation and Agreement on Gas Supply Realignment Cost Recovery between Natural and the Natural Customer Group as filed on February 1, 1994, and approved by the Commission with modifications on May 12, 1994. The tariff sheets modify two areas of the General Terms and Conditions of Natural's Tariff: Section 22, relating to rollover rights and Section 38, relating to recovery of gas supply realignment costs. Natural requests waiver of the Commission's Regulations, including the requirements to § 154.63, to the extent necessary to permit the tariff sheets to become effective September 1, 1994. Natural states that copies of its filing were served on all parties to this proceeding, jurisdictional transportation customers and interested state regulatory agencies.

Any person desiring to be heard or to protest this filing should file a motion to intervene or a protest with the Federal Energy Regulatory Commission, in accordance with § § 385.214 and 385.211 of the Commission's Rules and Regulations. All such motions or protests should be filed on or before August 19, 1994. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection in the public reference room.

The Commission is redocketing the material in the record related to the instant compliance filing into Docket No. RP94–346–000. This material is listed in the Appendix to this notice.

All parties in Natural's restructuring proceedings in Docket No. RS92–45–000 are automatically parties to the redocketed proceedings and need not file motions to intervene. However, due to the large number of parties on the service list in Natural's restructuring proceeding, the Secretary is establishing a restricted service list for the redocketed filings in accordance with § 385.2010 of the Commission's Rules and Regulations. The restricted service list will be the only service list maintained with respect to the redocketed filings. Parties wishing to be included on the restricted service list must submit to the Secretary of the Commission the names and addresses of the persons designated for service on or before August 19, 1994.

Linwood A. Watson, Jr.,

Acting Secretary.

APPENDIX

Filed/Issued	Materials Redocketed Into Docket No. RP94–346–000
2/1/94	Stipulation and Agreement on Gas Supply Realignment Costs, filed by Natural (previously docketed in Docket No. RS92–45–014, now docketed in Docket No. RP94–346–000).
2/22/94	Initial Comments: Process Gas Consumers, *et al.*, Central Illinois Public Service, Natural Customer Group, Indicated Shippers, City of Nashville, Illinois, Natural, Bethlehem Steel Corp., Cities of Lenox, *et al.*, Producer-Marketer Transportation Group, Transcontinental Gas Pipe Line Corp.
2/28/94	Reply Comments: Illinois Commerce Commission
3/4/94	Tenaska III Texas Partners, Natural, Process Gas Consumers Group, City of Nashville, Illinois, Dakota Gasification Company, Cities of Lenox, *et al.*, Natural Customer Group.
3/7/94	Process Gas Consumers, *et al.*
4/8/94	Stipulation and Agreement on Recovery of Gas Supply Realignment Costs from Nebraska City and Stipulation and Agreement on Recovery of Gas Supply Realignment Costs from Associated, filed by Natural (previously docketed in Docket No. RS92–45–016, now docketed in Docket No. RP94–346–001).
4/21/94	Notice Shortening Comment Period.
4/28/94	Initial Comments: Natural Customer Group, Natural, Vastar Resources, Inc., City of Nashville, Illinois, Indicated Shippers.
5/4/94	Reply comments: Dakota Gasification Co., Natural.
5/12/94	Order Approving Settlements as Modified, Granting, in Part, and Denying, in Part, Rehearing, Consolidating Proceedings, and Establishing a Hearing.
5/17/94	Joint Motion of Natural and the Natural Customer Group for Deferral of Prehearing Conference.
	Joint Motion for Extension of Time filed by Natural and the Natural Customer Group.
5/23/94	Notice Granting Extension of Time.
6/9/94	Requests for Rehearing and/or Clarification of 5/12/94 order (previously docketed in Docket Nos. RS92–45–017, RP94–87–002, RP94–122–002, RP94–169–002, and RP94–195–001, now docketed in Docket No. RP94–346–002) filed by: Dakota Gasification Company.
6/13/94	Natural Customer Group, Natural.
6/28/94	Motion for Extension of Time, filed by Natural.
7/11/94	Order Granting Rehearing Solely for the Purpose of Further Consideration.
7/12/94	Stipulation and Agreement on Recovery of Gas Supply Realignment Costs from Industrial Energy (previously docketed as Docket Nos. RP94–87–004 and RS92–45–000, now docketed in Docket No. RP94–346–003).
7/19/94	Compliance Filing by Natural (previously docketed as Docket No. RS92–45–018, now docketed in Docket No. RP94–346–004).
7/28/94	Protest by Process Gas Consumers Group.
8/1/94	Initial Comments on 7/12/94 Settlement filed by: Northern Illinois Gas Co., Dakota Gasification Co., Natural.

[FR Doc. 94–19458 Filed 8–9–94; 8:45 am]
BILLING CODE 6717–01–M

[Docket No. RP94–343–000]

NorAm Gas Transmission Company; Proposed Changes in FERC Gas Tariff

August 4, 1994.

Take notice that on August 1, 1994, NorAm Gas Transmission Company (NGT) tendered for filing proposed changes in its FERC Gas Tariff, by filing Fourth Revised Volume No. 1. NGT states that the proposed tariff sheets reflect an annual overall jurisdictional rate increase of approximately $42.5 million, described on Statement G, based on the twelve month period ending April 30, 1994, as adjusted. NGT also states that the filing reflects rate design changes required to implement Commission policy, as set forth in the Commission's Rate Design Policy Statement and in Order No. 636.

NGT states that in this filing it establishes additive zone rates for its throughway system and a market lateral surcharge to be charged to shippers with delivery points on market laterals. NGT establishes in this filing a new pooling rate schedule that establishes a pooling service that complements the zone rate proposal. NGT proposes in this filing to recover in its rates the costs associated with Line AC, and requests removal of the "at-risk" condition imposed with respect to Line AC. The filing also includes certain miscellaneous tariff changes including modifications to Rate Schedules FSS and NNTS, and to NGT's imbalance resolution mechanism.

NGT states that copies of the filing were served on NGT's jurisdictional customers and interested state public service commissions.

Any person desiring to be heard or to protest said filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 18 CFR 385.214). All such motions or protests should be filed on or before August 11, 1994. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 94–19459 Filed 8–9–94; 8:45 am]
BILLING CODE 6717–01–M

[Docket No. PR94–16–000]

Southern California Gas Co.; Notice Granting Late Intervention

August 4, 1994.

Motions to intervene in the above-captioned proceeding were due on July 1, 1994. A motion to intervene out of time was filed on July 12, 1994, by El Paso Natural Gas Company. No answers in opposition to the motion were filed.

The movant appears to have a legitimate interest under the law that is not adequately represented by other parties. Granting the intervention will not cause a delay or prejudice any other party. It is in the public interest to allow the movant to appear in proceeding. Accordingly, good cause exists for granting the late intervention.

Pursuant to § 375.302 of the Commission's Regulations (18 CFR 375.302 (1988)), the movant is permitted to intervene in this proceeding subject to the Commission's rules and regulations under the Natural Gas Act, 15 U.S.C. §§ 717–717(w). Participation of the late intervenor shall be limited to matters set forth in its motion to intervene. The admission of the late intervenor shall not be construed as recognition by the Commission that the intervenor might be aggrieved by any order entered in this proceeding.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 94–19460 Filed 8–9–94; 8:45 am]
BILLING CODE 6717–01–M

[Docket No. RP93–189–000]

Texas Gas Transmission Corp.; Notice Of Technical Conference

August 4, 1994.

Take notice that a technical conference has been scheduled for Thursday, August 11, 1994, at 1 p.m. in a room to be designated at the offices of the Federal Energy Regulatory Commission, 810 First Street, N.E., Washington, D.C. 20426, to discuss Texas Gas Transmission Corporation's filing in this proceeding.

All interested persons and Staff are permitted to attend.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 94–19461 Filed 8–9–94; 8:45 am]
BILLING CODE 6717–01–M

[Docket No. RP94–164–004]

Trunkline Gas Co.; Notice of Motion To Make Suspended Tariff Sheets Effective

August 4, 1994.

Take notice that on August 1, 1994, Trunkline Gas Company (Trunkline) tendered for filing the revised tariff sheets listed on Appendices A and B to the filing and requested that they be made effective September 1, 1994.

Trunkline states that the tariff sheets which it requested be made effective are being filed in compliance with Section 154.41 of the Commission's Regulations and the Commission's Orders dated March 31, 1994, and May 27, 1994, in Docket Nos. RP94–164–000, et al. Specifically, the revised tariff sheets reflect: (1) the refunctionalization of facilities in compliance with Commission Orders issued May 27, 1994, in Docket Nos. CP92–498–000 and June 17, 1994, in Docket No. RP94–164–000; (2) end of test period contract demand levels; and (3) the removal of costs of plant not in service at the end of the test period, all in compliance with Ordering Paragraph (c) of the Commission's March 31, 1994, Order in Docket No. RP94–164–000.

Trunkline states that copies of its transmittal letter, motion to place rates into effect and enclosures are being served on all jurisdictional customers, interested state commissions and all parties to this proceeding.

Any person desiring to protest said filing should file a protest with the Federal Energy Regulatory Commission, 825 North Capitol Street, NE., Washington, DC 20426, in accordance with Rule 211 of the Commission's Rules of Practice and Procedure (18 CFR 385.211. All such protests should be filed on or before August 11, 1994. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Copies of this filing are on file with the Commission and are available for public inspection.

Linwood A. Watson, Jr.,
Acting Secretary.
[FR Doc. 94–19462 Filed 8–9–94; 8:45 am]
BILLING CODE 6717–01–M

ENVIRONMENTAL PROTECTION AGENCY

[OPP-34058; FRL-4864-7]

Public Involvement in Significant Risk Reduction Decisions on Registered Pesticides

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice describes the Agency's general policy to provide opportunities for public involvement before reaching final significant risk reduction decisions on registered pesticides. Through this notice, the Agency is soliciting comments and suggestions from interested parties concerning the mechanisms used for public involvement prior to the Agency reaching such decisions, particularly those reached through the Special Review process and negotiated settlement agreements.

DATES: Written comments, identified by the document control number "OPP-50787," must be received on or before October 11, 1994.

ADDRESSES: Comments should be submitted to: Public Response and Program Resources Branch, Field Operations Division (7506C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. Hand delivered items should be delivered to: Public Response and Program Resources Branch, Field Operations Division, Office of Pesticide Programs, Environmental Protection Agency, Rm. 1132, Crystal Mall #2, 1921 Jefferson Davis Highway, Arlington, VA. Office hours are from 8 a.m. to 4:30 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: By mail: Joseph E. Bailey, Special Review and Reregistration Division (7508W), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. Office location and telephone number: Special Review Branch, Crystal Station #1, 3rd Floor, Room WF32G, 2800 Jefferson Davis Highway, Arlington, VA 22202, (703) 308-8173.

SUPPLEMENTARY INFORMATION:

I. Introduction

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA is given the responsibility of regulating the manufacture, sale, and use of pesticides to ensure that there are no unreasonable adverse effects to human health or the environment as a result of the use of a pesticide. Regulatory decisions that carry out this responsibility are reached by evaluating the risks and benefits associated with the pesticide's use, as well as with alternative pesticides and pest control methods. This process determines what degree of risk is reasonable while taking into consideration the economic and social benefits gained from the pesticide, ensuring that the risks do not outweigh the benefits. The Agency has several mechanisms in place to effect this balance if the results of the risk and benefit evaluations indicate that unreasonable adverse effects are likely from the pesticide's use and that regulatory action is warranted. Each of these mechanisms has advantages and disadvantages that range from the length of time required to reach the regulatory decision, the amount of Agency resources necessary, to the degree the public is involved.

II. Background

When the Agency has reason to believe that the use of a currently registered pesticide may result in unreasonable adverse effects to human health or the environment, a structured review of the pesticide of concern may be carried out through the formal Special Review process. The risk criteria initiating this review process and the regulations governing it are set forth in 40 CFR part 154. The formal Special Review process as set forth in these regulations provides the opportunity for public input through the solicitation of comments at two distinct stages of the review: The formal announcement of initiation of the Special Review (Position Document 1) and the announcement of the Agency's preliminary decision (Position Document 2/3). The Agency considers all significant comments before reaching a final decision.

The formal Special Review process can prove to be resource intensive and time-consuming due in part to its discrete stages and the opportunities provided for public comment. The Government Accounting Office (GAO) issued reports in 1980 and 1986 concluding that the Office of Pesticide Programs (OPP) was not completing reviews of potentially hazardous pesticides in a timely manner. Similarly, in 1984, the House of Representatives Committee on Government Operations found that the Special Review process was not quickly reaching decisions on potential risks that were found to be associated with certain pesticide uses. Recently, the Agency's Office of Inspector General (OIG) conducted an audit of the Special Review process and presented its results in a final report dated July 22, 1993. This report, while critical of some aspects of the Special Review process and the time involved in completing the reviews, also raised concerns about using negotiated settlement agreements to achieve pesticide risk reduction rather than initiating new Special Reviews. The OIG concluded that negotiated settlement agreements do achieve risk reduction more quickly than the formal Special Review process, but was concerned that negotiated decisions were made between the Agency and pesticide registrants at the expense of public involvement. The report also reflected concern that the Agency does not notify the public of risk concerns while a decision is being made whether or not to formally initiate a Special Review; i.e., during the pre-Special Review (that period of time after a preliminary (Grassley-Allen) notification is sent to the registrants but before issuance of the public announcement (Position Document 1) initiating the Special Review).

Other mechanisms are available to achieve pesticide risk reduction at a more accelerated pace than is afforded through a normal Special Review. They include the issuance of a Position Document 1/2/3 which combines the first two position documents issued in the formal Special Review process into one. This is used when enough information is available at the outset of a Special Review to fully assess the risks and benefits and reach a proposed decision. Additional mechanisms include issuing Notices of Intent to Cancel (NOIC), Suspension Orders, or Emergency Suspension Orders as provided under FIFRA section 6. These mechanisms can be used to remove pesticides from the market that pose significant risks or imminent hazards.

Although the Agency has used all of these different means in the past to effect pesticide risk reduction, recently, negotiated settlement agreements have been used more and more frequently. Through the process of negotiation, the Agency and the registrant(s) reach a mutual agreement that legally commits the registrant(s) to specific measures that will reduce potential risks associated with a pesticide's use. Such measures typically include modifying the terms of registration by cancellation of uses, changing use patterns, changing application methods, or altering the manufacturing formula. The same scientific principles and weight-of-evidence information that govern the decisions made during a formal Special Review also apply to negotiated settlements; that is, carefully analyzing risks, benefits, and alternative pest control methods to ensure that the risk

reduction measures desired will not result in risks that outweigh the benefits or that risks are reduced to the greatest extent practical while data are being generated to better understand the risks associated with the use of the pesticide. The agreements also make every effort to ensure that a pesticide use will not shift to an alternative pesticide or pest control method of equal or greater risk concern or result in the trading of one risk for another. By using the same analyses as those used in a formal Special Review, the public and the environment should be afforded the same level of protection in a more timely fashion. The main difference is that the Special Review process formally provides opportunities for public involvement before reaching risk reduction decisions.

In all negotiated settlement agreements, the Agency reserves the right to take additional regulatory action if evidence arises that warrants it. Similarly, the Agency can remove restrictions if additional data are reviewed later that indicate risks are of less concern than previously thought. Negotiated settlement agreements, however, should not be viewed as an exclusive mechanism to achieve a final risk reduction decision. They may be used to reach an ultimate goal of the Agency such as use cancellation or use reduction, or they may be used as an interim measure to reduce risks while additional data are being generated, or during any stage of an ongoing Special Review prior to the Agency making its final decision. Although the Agency has been criticized for neglecting to include affected constituency groups (e.g., users and public interest groups) in risk reduction decisions made through negotiated settlement agreements and for not making the general public aware of risk concerns for pesticides being considered for the formal Special Review process, several steps already have been taken to open up the decision-making process to the public whenever possible. Specific examples of how the Agency has provided for public involvement in recent negotiated settlement agreements are provided below.

1. *Parathion.* In September 1991, due to concerns of acute poisonings to workers exposed to parathion, the Agency reached a negotiated settlement agreement with the registrants whereby all but nine uses of parathion were voluntarily canceled. The Agency held public hearings in December 1992 to solicit public involvement and gain additional information on the risks and benefits of the remaining nine uses. These hearings were held in Amarillo, Texas; Lincoln, Nebraska; and Baltimore, Maryland and were announced in the **Federal Register** to encourage all interested parties to participate. The Agency also polled State and regional offices for advice and input.

2. *2,4-D.* In June 1992, in an effort to reduce the amount of exposure to persons applying 2,4-D and therefore reduce potential risks, the Agency met with the 2,4-D Task Force and requested that they include end-user input in the development of such measures. Also, through meetings and telephone conversations, the Agency actively included distributors and end-users to help develop effective and fair exposure reduction measures.

3. *Granular carbofuran.* According to 40 CFR 154.35(c), the Agency must publish a notice in the **Federal Register** to modify an earlier determination in a way that might increase a risk that was the subject of a Special Review. During the final stages of the Special Review of granular carbofuran, the Agency negotiated a settlement agreement with the registrants to phase out most uses. In order to extend the registration for the use of carbofuran on rice, the Agency formally requested public comment as required under 40 CFR 154.35(c). The denial of extensions of registrations for two other uses, corn and sorghum, did not require such request for comment. The Agency, however, announced in the **Federal Register** its decision to deny extension of the registration for corn and sorghum uses and allowed the opportunity for comment from affected individuals or groups.

4. *Azinphos-methyl.* Due to its concerns regarding the hazards azinphos-methyl posed to fish from use on sugarcane in Louisiana, the Agency reached an agreement with the registrants to amend their registrations in April 1993. The agreement, including prescription use, was the result of a cooperative effort between the Agency, Louisiana State officials, and the pesticide registrants. Through the use of public workshops held in Louisiana to collect additional information about azinphos-methyl use and alternative pesticides, the Agency advanced the use of negotiated settlement agreements by actively soliciting public input that contributed to the decision-making process. The workshops were announced in the **Federal Register** and participation of all interested parties was encouraged.

Furthermore, in order to keep the public better informed of its risk concerns, the Agency has, as a matter of general policy, made available to the public those dockets established for pre-Special Review chemicals which have had private notifications issued for 6 months but have not yet had a Special Review formally initiated. The Agency will continue this procedure. In addition, the Agency will announce those Special Review and pre-Special Review chemicals for which a public docket is available in the January edition of the quarterly Pesticide Reregistration Progress Report. Also, OPP's "Status of Pesticides in Reregistration and Special Review" (Rainbow Report) provides a comprehensive status of all chemicals currently undergoing reregistration and Special Review. To receive copies of these reports or to be added to the mailing list, please write or fax the following address: U.S. EPA, NCEPI, P.O. Box 42419, Cincinnati, OH 45242–0419, Telephone (513) 891–6561, Fax (513) 891–6685.

Mechanisms that may provide opportunities for public input that the Agency has not frequently used but will consider in the future, include the following:

- Holding public hearings provided under FIFRA section 6(b)(2). This section of FIFRA allows the Agency to issue a notice to hold hearings to determine whether or not a registration should be canceled or its classification changed and "such notice shall be sent to the registrant and made public."
- Requesting additional information and views from interested parties, particularly users, user associations and public interest groups, through solicitation of comments and notification of public hearings provided under FIFRA section 21(b).
- Publishing the Agency's risk concern and proposed regulatory action for a particular pesticide in the **Federal Register**, soliciting public comment. In fact, the Administrative Conference of the United States recently adopted Recommendation 93-5 concerning Procedures for Regulation of Pesticides. One of its final recommendations was that EPA provide public notification of pesticide risk concerns once negotiations begin, publicize the availability of a public docket, the proposed settlement and establish a "compliance docket" to address the effectiveness of the mitigated measures formally adopted. This recommendation was published in the **Federal Register** of February 1, 1994 (59 FR 4675).

The Agency is committed to the responsibilities set forth in FIFRA and views pesticide risk reduction as an evolving process where flexibility is a key element for successfully reducing risk posed by pesticides. For this reason,

the Agency feels that having the option of several mechanisms to achieve risk reduction provides for effective strategies that suit the varied situations that may present themselves. Each of the options lends itself to particular circumstances when other risk reduction mechanisms would prove less effective; therefore, the Agency will continue to consider all of the options available to promote safe and beneficial pesticide use.

III. General Policy to Provide for Public Involvement

It is the Agency's responsibility to investigate all registered pesticides thought to cause unreasonable adverse effects to human health or the environment and to reduce those risks to levels that the Agency feels are reasonable while considering the benefits of use. It is the Agency's goal to reduce significant risks as quickly as possible, considering all aspects of the chemical and utilizing the most efficient and effective regulatory option(s) available. In cases where negotiated settlement agreements are appropriate, it will be the Agency's general policy to provide opportunity for public involvement, whenever possible. The Agency understands the importance of public input in reaching regulatory decisions, especially input from grower and user groups closely associated with a particular pesticide of concern who may provide useful risk and benefit information that the Agency would find helpful in reducing risks while not significantly reducing the efficacy of the pesticide. Other critical information that could be obtained through public input and that the Agency views as essential to making effective decisions includes human or environmental incident data held by end-user groups or other environmental organizations. The Agency will continue to consider those mechanisms used in the past to encourage public involvement and will maintain an openness for innovative approaches that will allow for greater public involvement in negotiated settlement agreements.

IV. Comments

The Agency is requesting comments and suggestions on its existing or proposed means to acquire public input that can be used to enhance our risk/benefit analyses and the resulting regulatory decisions. The Agency is also seeking comment on the advantages and disadvantages of having affected or interested parties involved in negotiations.

Dated: July 29, 1994.

Lynn R. Goldman,

Assistant Administrator for Prevention, Pesticides and Toxic Substances.

[FR Doc. 94–19293 Filed 8–9–94; 8:45 am]

BILLING CODE 6560–50–F

[OPP–66197; FRL–4902–8]

Product Containing Methyl Bromide and 1,3-Dichloropropene; Voluntary Cancellation of Registration

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice; Receipt of Request to Cancel and Cancellation Order.

SUMMARY: EPA has received a request from Soil Chemicals Corp., Inc., to voluntarily cancel its registration for a product containing the active ingredients methyl bromide and 1,3-dichloropropene. EPA accepts and grants this request for voluntary cancellation.

DATES: This cancellation is effective August 10, 1994. Existing stocks of this product, Brom 70/30, may not be sold, distributed, or used effective August 10, 1994. The registrant has requested that the 90-day comment period be waived.

FOR FURTHER INFORMATION CONTACT: By mail: Lisa Nisenson, Special Review and Reregistration Division (7508W), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. Office location and telephone number: Special Review Branch, Rm. 2N6, 2800 Crystal Drive Arlington, VA (703)-308-8031.

SUPPLEMENTARY INFORMATION:

I. Background

This notice is issued pursuant to section 6(f)(1) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 136d(f)(1). It announces the Agency's decision to grant Soil Chemicals Corp.'s request for cancellation of the registration of Brom 70/30 (EPA registration number 8536-10).

Brom 70/30 is a fumigant product used to control nematodes and soil fungi as well as several other soil-borne pathogens on strawberries, tomatoes, seed beds, and floral and nursery crops. This product contains 1,3-dichloropropene and methyl bromide, and EPA has recently taken action affecting the regulatory status of both of these active ingredients.

1,3-Dichloropropene is registered by DowElanco and is marketed as Telone and Telone C-17. In addition to selling Telone as an end-use product, DowElanco also sells Telone to reformulators such as Soil Chemicals Corp., who add other active ingredients for specialized pesticidal needs. 1,3-Dichloropropene was placed in EPA's special review in 1986 based on cancer concerns for applicators and loaders. Groundwater contamination and possible residues in food were also noted. Several studies were required through the pesticide reregistration program to further define human exposure and potential ground water contamination.

On October 7, 1992, EPA and DowElanco entered into an agreement to modify the registrations and labels of its 1,3-dichloropropene products to reflect risk-reduction measures. The risk reduction measures were sought both through use reduction and through 1,3-dichloropropene-specific technology to reduce the amount of the chemical that escapes into the atmosphere. In addition, timeframes were set for all remaining studies, and DowElanco revised its product stewardship program to reflect the label changes. The agreement also specified that a clause be added to the Telone labels requiring that any product reformulated from or containing the Telone product bear an EPA-approved label containing all of the required changes in the timeframes specified in the agreement. EPA sent copies of the agreement to all registrants of products containing Telone with instructions as to how and when to respond.

On May 24, 1993, Soil Chemicals Corp. submitted labels for the first label changes from the October 1992 agreement, which were to take effect June 30, 1993. Soil Chemicals Corp. submitted labels for its 1,3-dichloropropene/chloropicrin products, as well as the Brom 70/30 product. These labels were rejected because new uses had been added to the revised labels without proper compensation agreements, as well as for other deficiencies. Soil Chemicals Corp. resubmitted corrected revised labels for the products containing 1,3-dichloropropene and chloropicrin, but none for Brom 70/30. Because the Brom 70/30 label does not contain the required changes for 1,3-dichloropropene, this product is now misbranded under FIFRA section 12(a)(1)(E) and subject to enforcement action.

In addition, EPA issued its final regulation for the worker protection standard (WPS) on August 21, 1992. The WPS provides basic information and protective measures for all persons involved in the handling of pesticides both during and after application. EPA decided to issue guidance for each

fumigant separately since the chemical properties, and thus protective requirements, of each fumigant differ greatly.

Due to 1,3-dichloropropene's small molecular size and high volatility, EPA requires tight-fitting protection, such as respirators, gloves, and face-sealing goggles. For methyl bromide, however, its corrosivity demands loose-fitting protective clothing. If tight-fitting clothing were also worn during methyl bromide use, the trapped chemical could cause serious skin damage.

Because of the conflicting WPS requirements and noncompliance with the label requirements arising from the October 1992 agreement, EPA issued a letter to Soil Chemicals Corp. on March 7, 1994, outlining the issues as discussed above, and explaining regulatory options to address the noncompliance with both the Telone label and the WPS.

II. Request for Voluntary Cancellation

In a letter dated March 21, 1994, Soil Chemicals Corp. requested voluntary cancellation of Brom 70/30. The company noted in the letter that it had not sold the product for the past 2 years and, further, claimed that neither the company nor supplemental distributors have any product under their custody. This claim is supported by results of a 1990 Data Call-In that was issued to collect information on use, usage, and product performance from 1988 to 1990. Soil Chemicals Corp. reported no use of Brom 70/30. In addition, Soil Chemicals Corp. asked that the 90-day comment period allowed by section 6(f) of FIFRA be waived.

III. EPA's Decision on the Request for Voluntary Cancellation and Existing Stocks Determination

EPA is hereby granting Soil Chemicals Corp.'s request to cancel the registration of Brom 70/30. EPA is not allowing the sale, distribution, or use of any existing stocks due to Soil Chemicals Corp.'s noncompliance with the October 1992 agreement and the requirements associated with the WPS. That standard mandates that any product sold after April 21, 1994 must bear language from the WPS. Because Soil Chemicals Corp. has not submitted a label for approval, any Brom 70/30 product is out of compliance and subject to enforcement action. EPA expects little or no impact to distributors or users because the registrant reported no stocks in the channels of trade, and because the results of a 1990 Data Call-In for products containing 1,3-dichloropropene showed no use of this product from 1988 to 1990.

IV. Cancellation Order

Under section 6(f)(1) of FIFRA, a registrant may request at any time that EPA cancel any of its pesticide registrations. EPA must publish in the **Federal Register** a notice of receipt of the request to allow public comment before granting the request unless either the registrant requests a waiver of the notice or the Administrator determines that the continued use of the pesticide would pose unreasonable adverse affects on the environment. Soil Chemicals Corp. requested voluntary cancellation and waived any comment period.

I approve the order cancelling the registration of Brom 70/30. Accordingly, this cancellation shall be effective and no person may distribute, sell, or use this product as of August 10,1994. Any sale, distribution or other disposition of existing stocks that is not consistent with the terms of this Order will be considered a violation of FIFRA section 12(a)(2)(K) and/or section 12(a)(1)(A), as appropriate.

List of Subjects

Environmental protection, Administrative practice and procedure, Agricultural commodities, Pesticides and pests, Recording and recordkeeping requirements.

Dated: August 1, 1994.

Daniel M. Barolo,

Director, Office of Pesticide Programs

[FR Doc. 94–19398 Filed 8–9–94; 8:45 am]

BILLING CODE 6560–50–F

FEDERAL COMMUNICATIONS COMMISSION

Public Information Collection Approved by Office of Management and Budget

The Federal Communications Commission (FCC) has received Office of Management and Budget (OMB) approval for the following public information collection pursuant to the Paperwork Reduction Act of 1980, Pub. L. 96–511. For further information contact Shoko B. Hair, Federal Communications Commission, (202) 418–1379.

Federal Communications Commission

OMB Control No.: 3060–0599

Title: Implementation of Sections 3(n) and 332 of the Communications Act, GN Docket No. 93–252, Second Report and Order.

Expiration Date: 04/30/97

Estimated Annual Burden: 2150 total hours; 1.66 hours per response; 1295 respondents.

Description: In the Second Report and Order issued in GN Docket No. 93–252, the Commission adopted rules to implement Sections 3(n) and 332 of the Communications Act of 1934, as amended by Section 6000(b) of the Omnibus Budget Reconciliation Act of 1993. The new rules adopted: (1) interpret the elements that define the terms "commercial mobile radio service (CMRS)" and "private mobile radio service (PMRS);" (2) based on these definitions, determine the regulatory status of existing mobile services and of personal communications services (PCS); (3) address the degree to which those services that will be classified as CMRS will be subject to regulation under Title II of the Act; and (4) address the other issues, including interconnection rights and preemption of state regulatory authority over mobile service providers. Traditional private carriers now reclassified as commercial mobile radio services providers will be subject to certain Title II provisions. The statute preempts state regulation of entry and rates for both CMRS and PMRS providers. States may petition the Commission for authority to regulate CMRS rates under some circumstances. The information collected as a result of this rulemaking will create regulatory symmetry among similar mobile services. This symmetrical regulatory structure will promote competition in the mobile services marketplace and will serve the interests of consumers while also benefitting the national economy.

Federal Communications Commission.

William F. Caton,

Acting Secretary.

[FR Doc. 94–19492 Filed 8–9–94; 8:45 am]

BILLING CODE 6712–01–M

FEDERAL MARITIME COMMISSION

Agreement(s) Filed; South America Pacific Coast Rate Agreement; et. al

The Federal Maritime Commission hereby gives notice of the filing of the following agreement(s) pursuant to section 5 of the Shipping Act of 1984.

Interested parties may inspect and obtain a copy of each agreement at the Washington, D.C. Office of the Federal Maritime Commission, 800 North Capitol Street, N.W., 9th Floor. Interested parties may submit comments on each agreement to the Secretary, Federal Maritime Commission, Washington, D.C. 20573, within 10 days

after the date of the **Federal Register** in which this notice appears. The requirements for comments are found in section 572.603 of Title 46 of the Code of Federal Regulations. Interested persons should consult this section before communicating with the Commission regarding a pending agreement.

Agreement No.: 203–011464.
Title: South America Pacific Coast Service Agreement.
Parties:
Nedlloyd Lijnen BV
Mediterranean Shipping Company, S.A.

Synopsis: The proposed Agreement authorizes the parties to consult and agree upon deployment and utilization of vessels, rationalization of sailings, the chartering of space from each other, and to discuss other matters of mutual concern in the trade between U.S. Atlantic and Gulf ports and points (Bangor, Maine/Brownsville, Texas range) and all South America Pacific Coast ports (Panama-Colombia Pacific border/Cape Horn Range) and coastal and interior points in South America via such ports. Adherence to any agreement reached is voluntary.

Agreement No.: 202–011465.
Title: South America Pacific Coast Rate Agreement.
Parties:
Nedlloyd Lijnen BV
Mediterranean Shipping Company, S.A.

Synopsis: The proposed Agreement authorizes the parties to establish a conference arrangement in the trade between U.S. Atlantic and Gulf ports and points and all South America Pacific coast ports (Panama-Columbia Pacific border/Cape Horn range) and all coastal and interior points in south America via such ports.

Agreement No.: 224–200259–006.
Title: Jacksonville Port Authority/Crowley American Transport, Inc. Terminal Agreement.
Parties:
Jacksonville Port Authority
Crowley American Transport, Inc.

Synopsis: The proposed amendment extends the term of the Agreement.

Agreement No.: 224–200876.
Title: Tampa Port Authority/Tampa Bay International Terminals Inc. Wharfage Incentive Agreement
Parties:
Tampa Port Authority ("Port")
Tampa Bay International Terminals, Inc.

Synopsis: The proposed Agreement authorizes the Port to assess an incentive wharfage rate of $1.00 per net ton on movements of import or export iron or steel articles, subject to a minimum annual volume of 20,000 net tons.

Dated: August 4, 1994.

By Order of the Federal Maritime Commission

Joseph C. Polking,

Secretary.

[FR Doc. 94–19453 Filed 8–9–94; 8:45 am]

BILLING CODE 6730–01–M

Security for the Protection of the Public Indemnification of Passengers for Nonperformance of Transportation; Issuance of Certificate (Performance)

Notice is hereby given that the following have been issued a Certificate of Financial Responsibility for Indemnification of Passengers for Nonperformance of Transportation pursuant to the provisions of Section 3, Public Law 89–777 (46 U.S.C. 817(e)) and the Federal Maritime Commission's implementing regulations at 46 CFR Part 540, as amended:

Cunard Line Limited, 555 Fifth Avenue, New York, NY 70130

Vessel: ROYAL VIKING SUN

Dated: August 4, 1994.

Joseph C. Polking,

Secretary.

[FR Doc. 94–19454 Filed 8–9–94; 8:45 am]

BILLING CODE 6730–01–M

Security for the Protection of the Public Financial Responsibility To Meet Liability Incurred for Death or Injury to Passengers or Other Persons on Voyages; Issuances of Certificate (Casualty)

Notice is hereby given that the following have been issued a Certificate of Financial Responsibility to Meet Liability Incurred for Death or Injury to Passengers or Other Persons on Voyages pursuant to the provisions of Section 2, Public Law 89–777 (46 U.S.C. § 817(d)) and the Federal Maritime Commission's implementing regulations at 46 CFR Part 540, as amended:

Cunard Line Limited, 555 Fifth Avenue, New York, NY 70130

Vessel: ROYAL VIKING SUN

Dated: August 4, 1994.

Joseph C. Polking,

Secretary.

[FR Doc. 94–11455 Filed 8–9–94; 8:45 am]

BILLING CODE 6730–01–M

[Docket No. 94–17]

Amzone International, Inc. and Universal Cargo Management, Inc. v. Hyundai Merchant Marine Co., Ltd.; Filing of Complaint and Assignment

Notice is given that a complaint filed by Amzone International, Inc. and Universal Cargo Management, Inc. ("Complainants") against Hyundai Merchant Marine Co., Ltd. ("Respondent") was served August 4, 1994. Complainants allege that Respondent violated sections 8(c) and 10(b)(12) of the Shipping Act of 1984, 46 U.S.C. app. §§ 1707(c) and 1709(b)(12), by failing and refusing to make available, in response to "me-too" requests, the essential terms of a service contract to Complainants, both of which are alleged to be similarly situated shippers, on the same basis as made available to the original contract shipper, and by granting another Non-Vessel Operating Common Carrier's "me-too" request for the same service contract.

This proceeding has been assigned to the office of Administrative Law Judges. Hearing in this matter, if any is held, shall commence within the time limitations prescribed in 46 CFR 502.61, and only after consideration has been given by the parties and the presiding officer to the use of alternative forms of dispute resolution. The hearing shall include oral testimony and cross-examination in the discretion of the presiding officer only upon proper showing that there are genuine issues of material fact that cannot be resolved on the basis of sworn statements, affidavits, depositions, or other documents or that the nature of the matter in issue is such that an oral hearing and cross-examination are necessary for the development of an adequate record. Pursuant to the further terms of 46 CFR 502.61, the initial decision of the presiding officer in this proceeding shall be issued by August 4, 1995, and the final decision of the Commission shall be issued by December 4, 1995.

Joseph C. Polking,

Secretary.

[FR Doc. 94–19456 Filed 8–9–94; 8:45 am]

BILLING CODE 6730–01–M

FEDERAL RESERVE SYSTEM

Credit Lyonnais S.A.; Notice of Application to Engage de novo in Permissible Nonbanking Activities

The company listed in this notice has filed an application under § 225.23(a)(1) of the Board's Regulation Y (12 CFR

225.23(a)(1)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843(c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to commence or to engage *de novo*, either directly or through a subsidiary, in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

The application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Comments regarding the application must be received at the Reserve Bank indicated or the offices of the Board of Governors not later than August 30, 1994.

A. Federal Reserve Bank of New York (William L. Rutledge, Senior Vice President) 33 Liberty Street, New York, New York 10045:

1. Credit Lyonnais S.A., Paris, France; to engage *de novo* through its subsidiary Credit Lyonnais International Asset Management USA, Inc., San Francisco, California, as an investment adviser to registered investment companies, to include sponsoring, organizing, and managing a closed-end investment company; and to provide portfolio investment advice and investment management services to institutions and high-net worth individuals pursuant to § 225.25(b)(4)(ii) of the Board's Regulation Y. These investment advisory and management services will be provided to registered investment companies and to other institutional clients and high net-worth individuals located both within and outside the United States.

Board of Governors of the Federal Reserve System, August 4, 1994.

Jennifer J. Johnson,

Deputy Secretary of the Board.

[FR Doc. 94-19485 Filed 8-9-94; 8:45 am]

BILLING CODE 6210-01-F

The First National Bank of Keystone Employee Stock Ownership Plan; Formation of, Acquisition by, or Merger of Bank Holding Companies

The company listed in this notice has applied for the Board's approval under section 3 of the Bank Holding Company Act (12 U.S.C. 1842) and § 225.14 of the Board's Regulation Y (12 CFR 225.14) to become a bank holding company or to acquire a bank or bank holding company. The factors that are considered in acting on the applications are set forth in section 3(c) of the Act (12 U.S.C. 1842(c)).

The application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank indicated for that application or to the offices of the Board of Governors. Any comment on an application that requests a hearing must include a statement of why a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute and summarizing the evidence that would be presented at a hearing.

Comments regarding this application must be received not later than September 2, 1994.

A. Federal Reserve Bank of Richmond (Lloyd W. Bostian, Jr., Senior Vice President) 701 East Byrd Street, Richmond, Virginia 23261:

1. The First National Bank of Keystone Employee Stock Ownership Plan, Keystone, West Virginia; to become a bank holding company by acquiring 42.8 percent of the voting shares of The First National Bank of Keystone, Keystone, West Virginia.

Board of Governors of the Federal Reserve System, August 4, 1994.

Jennifer J. Johnson,

Deputy Secretary of the Board.

[FR Doc. 94-19486 Filed 8-9-94; 8:45 am]

BILLING CODE 6210-01-F

John D. and Maureen Moran, et al.; Change in Bank Control Notices; Acquisitions of Shares of Banks or Bank Holding Companies

The notificants listed below have applied under the Change in Bank Control Act (12 U.S.C. 1817(j)) and § 225.41 of the Board's Regulation Y (12 CFR 225.41) to acquire a bank or bank holding company. The factors that are considered in acting on the notices are set forth in paragraph 7 of the Act (12 U.S.C. 1817(j)(7)).

The notices are available for immediate inspection at the Federal Reserve Bank indicated. Once the notices have been accepted for processing, they will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing to the Reserve Bank indicated for that notice or to the offices of the Board of Governors. Comments must be received not later than August 30, 1994.

A. Federal Reserve Bank of Philadelphia (Thomas K. Desch, Vice President) 100 North 6th Street, Philadelphia, Pennsylvania 19105:

1. John D. and Maureen Moran, Wilkes-Barre, Pennsylvania; to acquire 24.9 percent of the voting shares of Guaranty Bancshares Corporation, Shamokin, Pennsylvania, and thereby indirectly acquire Guaranty Bank, N.A., Shamokin, Pennsylvania.

B. Federal Reserve Bank of Richmond (Lloyd W. Bostian, Jr., Senior Vice President) 701 East Byrd Street, Richmond, Virginia 23261:

1. James Hubert Hollis, Jr., Brantley, Alabama; to acquire 5.06 percent for a total of 25.77 percent, of the voting shares of Brantley Bancorp, Inc., Brantley, Alabama, and thereby indirectly acquire Brantley Bank & Trust Co., Brantley, Alabama.

C. Federal Reserve Bank of Minneapolis (James M. Lyon, Vice President) 250 Marquette Avenue, Minneapolis, Minnesota 55480:

1. Angelo Medure, New Castle, Pennsylvania; to acquire 75.29 percent and Midwest Minnesota Community Development Corporation, Detroit Lakes, Minnesota, and CDC Investments, Inc., Detroit Lakes, Minnesota, to acquire 14.91 percent of the voting shares of Waubun Bancshares Inc., Waubun, Minnesota, and thereby indirectly acquire Farmers State Bank of Waubun, Waubun, Minnesota. Notificants have filed a notice that they are acting in concert for purposes of the Change in Bank Control Act.

Board of Governors of the Federal Reserve System, August 4, 1994.

Jennifer J. Johnson,

Deputy Secretary of the Board.

[FR Doc. 94-19487 Filed 8-9-94; 8:45 am]

BILLING CODE 6210-01-F

North Fork Bancorporation, et al.; Acquisitions of Companies Engaged in Permissible Nonbanking Activities

The organizations listed in this notice have applied under § 225.23(a)(2) or (f) of the Board's Regulation Y (12 CFR 225.23(a)(2) or (f)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. 1843(c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to acquire or control voting securities or assets of a company engaged in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

Each application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Unless otherwise noted, comments regarding each of these applications must be received at the Reserve Bank indicated for the application or the offices of the Board of Governors not later than September 2, 1994.

A. Federal Reserve Bank of New York (William L. Rutledge, Senior Vice President) 33 Liberty Street, New York, New York 10045:

1. North Fork Bancorporation, Mattituck, New York; to acquire Metro Bancshares Inc., Jericho, New York; and thereby indirectly acquire Bayside Federal Savings Bank, Jericho, New York, and thereby engage in operating a savings association pursuant to section 225.25(b)(9) of the Board's Regulation Y. It is also intended that Bayside Federal Savings Bank be merged with and into North Fork Bancorporation's subsidiary, North Fork Bank, Mattituck, New York.

B. Federal Reserve Bank of Atlanta (Zane R. Kelley, Vice President) 104 Marietta Street, N.W., Atlanta, Georgia 30303:

1. First Bank Shares of the South East, Inc., Alma, Georgia; to acquire Full Service Financial, Inc., Nicholls, Georgia, and thereby engage in credit-related insurance activity pursuant to sections 225.25(b)(1)(i) and 225.25(b)(8)(i) of the Board's Regulation Y.

Board of Governors of the Federal Reserve System, August 4, 1994.

Jennifer J. Johnson,

Deputy Secretary of the Board.

[FR Doc. 94-19488 Filed 8-9-94; 8:45 am]

BILLING CODE 6210-01-F

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Administration For Children and Families

Agency Information Collection Under OMB Review

Under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35), we have submitted to the Office of Management and Budget (OMB) for approval of a new information collection request titled: "Inventory of Child Care Management Information Systems." This request is sponsored by the Division of Child Care of the Administration for Children and Families (ACF).

ADDRESSES: Copies of these survey instruments may be obtained from Edward E. Saunders of the Office of Information Systems Management, ACF, by calling (202) 205–7921.

Written comments and questions regarding this information collection should be sent directly to:

Laura Oliven, OMB Desk Officer for ACF, OMB Reports Management Branch, New Executive Office Building, Room 3002, 725 17th Street NW., Washington, DC 20503 (202) 395–7316.

Information on Document:

Title: Inventory of Child Care Management Information Systems.

OMB No. New.

Description: The Administration for Children and Families (ACF) is responsible for a number of Federal programs which promote the economic self-sufficiency and social well-being of low-income families and children. Current ACF child care programs that provide funding to States, Territories, Indian Tribes and Tribal organizations for this purpose include: Aid to Families with Dependent Children (AFDC)/Job Opportunities and Basic Skills Training (JOBS), At-Risk Child Care (ARCC), Child Care and Development Block Grant (CCDBG), Social Services Block Grant (SSBG), and Transitional Child Care (TCC).

In recent years, Federally-funded child care programs have grown in complexity and size. Increased monitoring and reporting is required in order to assure program accountability and respond effectively to congressional requests for information about the management, integration and use of funds for these various child care programs.

Until recently, ACF has awarded grants to States, Territories, Indian Tribes, and Tribal organizations to develop and enhance the automation of child care program operations. To this end, grantees were encouraged to use computers and information systems technologies to operate their child care programs more efficiently and effectively. However, no systematic approach has been untaken by ACF to determine the scope of management information systems (MIS), especially the computerization of day care operations or the capabilities, utilization, functions and configuration of computer systems for the management and administration of Federal child care programs.

This survey will be used to develop an inventory of child care MIS for State, Territory and Tribal Grantees. ACF needs this information to develop baseline information from which to identify technical assistance needs of its grantees. In addition, this information will assist ACF in program evaluation, management, and monitoring of child care programs.

	States/ Territories	Tribes
Annual number of respondents	112	213
Annual frequency	1	1
Average burden hours per response	1.5	.5
Total burden hours	168	106.5
Total burden hours	.....	274.5

Dated: August 2, 1994.

Larry Guerrero,

Deputy Director, Office of Information Systems Management.

[FR Doc. 94–19465 Filed 8–9–94; 8:45 am]

BILLING CODE 4184–01–M

Food and Drug Administration

[Docket No. 94N–0292]

Drug Export; Provon® Antiseptic Lotion Soap (Chlorhexidine Gluconate 2%)

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice.

SUMMARY: The Food and Drug Administration (FDA) is announcing that GOJO Industries, Inc., has filed an application requesting approval for the export of the human drug Provon® Antiseptic Lotion Soap (Chlorhexidine Gluconate 2%) to Canada.

ADDRESSES: Relevant information on this application may be directed to the Dockets Management Branch (HFA–305), Food and Drug Administration, rm. 1–23, 12420 Parklawn Dr., Rockville, MD 20857, and to the contact person identified below. Any future inquiries concerning the export of human drugs under the Drug Export Amendments Act of 1986 should also be directed to the contact person.

FOR FURTHER INFORMATION CONTACT: James E. Hamilton, Center for Drug Evaluation and Research (HFD–313), Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857, 301–594–2073.

SUPPLEMENTARY INFORMATION: The drug export provisions in section 802 of the Federal Food, Drug, and Cosmetic Act (the act) (21 U.S.C. 382) provide that FDA may approve applications for the export of drugs that are not currently approved in the United States. Section 802(b)(3)(B) of the act sets forth the requirements that must be met in an application for approval. Section 802(b)(3)(C) of the act requires that the agency review the application within 30 days of its filing to determine whether the requirements of section 802(b)(3)(B) have been satisfied. Section 802(b)(3)(A) of the act requires that the agency publish a notice in the **Federal Register** within 10 days of the filing of an application for export to facilitate public participation in its review of the application. To meet this requirement, the agency is providing notice that GOJO Industries, Inc., 3783 State Rd., Cuyahoga Falls, OH 44223–2698, has filed an application requesting approval for the export to Canada of the human drug Provon® Antiseptic Lotion Soap (Chlorhexidine Gluconate 2%). This drug product is used as an antiseptic handwash; healthcare personnel handwash; surgical hand scrub for killing germs, reducing the transmission of disease causing micro-organisms, and preventing nosocomial infections. The application was received and filed in the Center for Drug Evaluation and Research on July 26, 1994, which shall be considered the filing date for purposes of the act.

Interested persons may submit relevant information on the application to the Dockets Management Branch (address above) in two copies (except that individuals may submit single copies) and identified with the docket number found in brackets in the heading of this document. These submissions may be seen in the Dockets Management Branch between 9 a.m. and 4 p.m., Monday through Friday.

The agency encourages any person who submits relevant information on the application to do so by August 22, 1994, and to provide an additional copy of the submission directly to the contact person identified above, to facilitate consideration of the information during the 30-day review period.

This notice is issued under the Federal Food, Drug, and Cosmetic Act (sec. 802 (21 U.S.C. 382)) and under authority delegated to the Commissioner of Food and Drugs (21 CFR 5.10) and redelegated to the Center for Drug Evaluation and Research (21 CFR 5.44).

Dated: August 1, 1994.

Stephanie R. Gray,

Acting Director, Center for Drug Evaluation and Research.

[FR Doc. 94–19431 Filed 8–9–94; 8:45 am]

BILLING CODE 4160–01–F

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Office of the Assistant Secretary for Public and Indian Housing

[Docket No. N–94–3800; FR–3649–N–02]

Submission of Proposed Information Collection Requirement to OMB

AGENCY: Office of the Assistant Secretary for Public and Indian Housing, HUD.

ACTION: Notice.

SUMMARY: The proposed information collection requirement described below has been submitted to the Office of Management and Budget (OMB) for expedited review, as required by the Paperwork Reduction Act. The Department is soliciting public comments on the subject proposal.

DATES: Comments must be received on or before August 17, 1994.

ADDRESSES: Interested persons are invited to submit comments regarding this proposal. Comments should refer to the proposal by name and should be sent to: Joseph F. Lackey, Jr., OMB Desk Officer, Office of Management and Budget, New Executive Office Building, Washington, DC 20503.

FOR FURTHER INFORMATION CONTACT: Kay F. Weaver, Reports Management Officer, Department of Housing and Urban Development, 451 7th Street, Southwest, Washington, DC 20410, telephone (202) 708–0050. This is not a toll-free number. Copies of the proposed forms and other available documents submitted to OMB may be obtained from Ms. Weaver.

SUPPLEMENTARY INFORMATION: This notice informs the public that the Department of Housing and Urban Development has submitted to OMB, for expedited processing, an information collection package with respect to a Notice of Funding Availability (NOFA) for a Youth Apprenticeship Program.

The funds were appropriated by Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act for 1994 (Pub. L. 103–124, approved October 28, 1993).

HUD intends to provide $10,000,000 under this NOFA to public housing agencies to initiate a joint labor-management organization youth apprenticeship or career craft development program in Urban Revitalization Demonstration communities.

The NOFA describes: (1) the scope of eligible activities; (2) the application process and factors that HUD will use in evaluating applications; and (3) the selection and approval procedures.

The Department has submitted the proposal for the collection of information as described below, to OMB for review, as required by the Paperwork Reduction Act (44 U.S.C. Chapter 25):

(1) The title of the information collection proposal: Application Requirements for FY 1994 Youth Apprenticeship Program

(2) The Office of the agency to collect the information: Office of Public and Indian Housing, Office of Resident Initiatives

(3) The description of the need for the information and its proposed use: Information is needed from eligible applicants to be evaluated by HUD, rated and ranked based on selection

criteria, and awarded funding grants. Grants will be used to initiate a joint labor-management organization YPA Program in the city's Urban Revitalization Demonstration (URD) community.

(4) The agency form number, if applicable: None

(5) What members of the public will be affected by the proposal: State or local governments

(6) How frequently information submission will be required: On a Fiscal Year basis as funding is appropriated.

(7) An estimate of the total number of hours needed to prepare the information submission including number of respondents, frequency of response, and hours of response: 57,334 Total Burden Hours, 33 PHAs/3,500 Residents, one-time, average 40 hours.

(8) Whether the proposal is new or an extension, reinstatement, or revision of an information collection requirement: new proposal

(9) The names and telephone numbers of an agency official familiar with the proposal and of the OMB Desk Officer for the Department: Paula Blunt, HUD, (202) 708–4214, Joseph Lackey, Jr., OMB, (202) 395–7316.

Authority: Section 3507 of the Paperwork Reduction Act, 44 U.S.C.; Section 7(d) of the Department of Housing and Urban Development Act, 42 U.S.C. 3535(d).

Dated: July 28, 1994.

Joseph Shuldiner,

Assistant Secretary for Public and Indian Housing.

Proposal: Notice of Funding Availability for Fiscal Year 1994—Youth Apprenticeship Program.

Office: Office of Resident Initiatives.

Description of the Need for the Information and its Proposed Use: This information collection is required in connection with the issuance of a Notice of Funding Availability, which announces the availability of $10,000,000 for Youth Apprenticeship Programs for Fiscal Year 1994, and invites applications from eligible public housing agencies to compete for funding grants. Funds will be provided to public housing agencies (PHAs) to initiate a joint labor-management organization youth apprenticeship program in that city's Urban Revitalization Demonstration (URD) community.

Form Number: None.

Respondents: Public Housing Agencies.

Reporting Burden:

	Number of respondents	=	Frequency of responses	=	Hours per response	=	Burden hours
Application development	33		1		Varies		57,433

Status: New Collection.

Contact: Paula O. Blunt, HUD (202) 708–4214.

Date: July 28, 1994.

Supporting Statement for Information Collection for Notice of Funding Availability for Youth Apprenticeship Programs

A. Justification

1. This information collection is required in connection with the issuance of a Notice of Funding Availability (NOFA) which announces the availability of $10,000,000 for Youth Apprenticeship Programs for Fiscal Year 1994. The Youth Apprenticeship Program is authorized by the Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act for 1993 (Pub. L. 103–124, approved October 28, 1993). Under the program, grants will be provided to public housing agencies that have been awarded a grant under the Urban Revitalization Demonstration Program (URD) to initiate a joint labor-management organization youth apprenticeship program in that city's URD community.

—Section IE(5) requires HAs to develop a process for resident involvement, consultation and comment on proposed applications.

—Section II (entirety), Application submission Requirements: description of Program, agreements, narratives, and certifications.

—Section I.G., Reports, requires HAs to submit an annual progress report for evaluation purposes, regarding the effectiveness of the Youth Apprenticeship Program in meeting its purpose.

A copy of the NOFA is attached.

HAs that are interested in participating in the program will use an application kit.

2. The information provided by the applicants will be reviewed and evaluated against the ranking factors contained in the NOFA for possible funding. The applicants will be notified of their selection/rejection. The information is necessary so that the applicants can apply and compete for funding opportunities.

3. We have considered the use of improved technology since there is no other way to obtain the information except directly from the HAs.

4. There will be no duplication of information.

5. There is no similar information already available which could be used or modified for this purpose.

6. We have attempted to minimize the burden on the public housing agencies by using an application kit which includes all the necessary documents for application purposes and contains detailed instructions for completing the information.

7. The information will be collected on a one-time basis as funding is available for Program.

8. There are no special circumstances that require the collection to be conducted in a manner which is inconsistent with the guidelines in 5 CFR 1320.6.

9. Before and during the drafting of the NOFA, informal meetings were held with Executive Directors of Housing Authorities, Youth Corps organizations, and labor union representatives.

10. No assurances of confidentiality is provided.

11. No sensitive questions were asked.

12. We do not estimate that there will be any additional costs for the Federal Government. The applications will be reviewed in accordance with HUD's existing review and monitoring requirements. Annual cost to the respondent is estimated to be minimal since the application submission may be prepared by the public housing agency.

13. We estimate that the information requirement of the proposed NOFA will have the following reporting burdens:

	Number of respondent	=	Frequency of responses	=	Hours per response	=	Burden hours
Resident involvement	3,500		1		16		56,000
Application development	33		1		40		1,320
Annual report	7		1		2		14
Total reporting burden							57,334

	Number of record-keepers	=	Hours per record-keeper	=	Total recordkeeping hours
	33		3		99
Total recordkeeping burden					99
Total Burden					57,433

14. This new collection implements the Youth Apprenticeship Program.

15. The collection of this information will not be published for statistical use.

Applications must contain the following information:

A. *Applicant Identification.* Name and address of the PHA and name and telephone number of contact person.

B. *HOPE VI Certification.* Certification that the applicant is a HOPE VI grantee and program participants will be eligible participants.

C. *Program Description.* A comprehensive description of the proposed Youth Apprenticeship program.

D. *Agreements.* A copy of the agreement(s) that has been executed between the PHA, a Youth Corps, a local labor organization, and a multi-employer organization.

E. *Resident Involvement.* A description of the resident involvement in the planning and implementation phases of this program.

F. *Outreach Efforts.* A description of youth outreach, recruitment and selection efforts.

G. *Mentoring Program.* A description of the mentoring program to be provided for program participants.

H. *Letters of Commitment.* Letters of commitment identifying all commitments for resources to be made available to the program from the applicable entity.

I. *Budget and Implementation Schedule.* A project budget and implementation schedule.

J. *Previous Experience.* A narrative on the housing authority's past experience in obtaining and providing similar opportunities for public and assisted housing youths.

K. *Occupations for Youths.* A narrative describing the occupations for which training and apprenticeships are being developed and the market for future employment in these occupations.

L. *Supportive Services.* A description of the need for supportive services and the supportive services to be provided for program participants.

M. *Equal Opportunity Requirements.* The PHA must certify that it will carry out activities assisted under the program in compliance with:

(i) The requirements of the Fair Housing Act (42 U.S.C. 3601–3619); and Executive Order 11063; and Title VI of the Civil Rights Act of 1964.

(ii) The prohibitions against discrimination on the basis of age under the Age Discrimination Act of 1975; the prohibition against discrimination against individuals with a disability under section 504 of the Rehabilitation Act of 1973; and the requirements of Executive Order 11246;

(iii) The requirements of section 3 of the Housing and Urban Development Act of 1968; and

(iv) The requirements of Executive Orders 11625, 12432, and 12138.

N. *Form HUD–2880.* Form HUD–2880 (Applicant/Recipient Disclosure Update Report) must be completed in accordance with 24 CFR part 12, Accountability in the Provision of HUD Assistance.

O. *Certification concerning Funds for Eligible Costs.* A certification that funds used to pay for items listed in Section I.E.3 of this NOFA (Eligible Cost) are not duplicative expenses from any other program.

P. *Drug-Free Workplace Certification.* The Drug-Free Workplace Act of 1988 (42 U.S.C. 701) requires grantees of Federal agencies to certify that they will provide drug-free workplaces.

Q. *Certification regarding Lobbying.* Section 319 of the Department of the Interior Appropriations Act, Public Law 101–121, approved October 23, 1989 (31 U.S.C. 1342) (the "Byrd Amendment"). Any PHA submitting an application under this announcement for more than $100,000 of budget authority must submit a certification and, if applicable, a Disclosure of Lobbying Activities (SF–LLL form).

Reports

Each PHA receiving a grant shall submit to HUD an annual progress report. As party of HUD's evaluation of the program, grantees will be expected to maintain records on each of the participants in the program. Grantees will maintain these records on forms to be developed and provided by HUD and will make these records available to HUD for use in an evaluation of the Initiative.

[FR Doc. 94–19512 Filed 8–9–94; 8:45 am]
BILLING CODE 4210–33–M

Office of the Secretary

[Docket No. N–94–3735; FR–3643–N–03]

Deadline Extension for Submission of Applications for Lead-Based Paint Hazard Control Grant Program

AGENCY: Office of the Secretary, HUD.

ACTION: Notice of deadline extension.

SUMMARY: This Notice announces a deadline extension for submission of applications for grants under the Notice of Funding Availability for Lead-Based Paint Hazard Control in Priority Housing (FR–3643) published in the Federal Register on April 21, 1994 at 59 FR 19080, for Southeastern Cook County, Will County and Kankakee County, Illinois.

EFFECTIVE DATE: August 3, 1994.

FOR FURTHER INFORMATION CONTACT: Ellis G. Goldman, Director, Program Management Division, Office of Lead-Based Paint Abatement and Poisoning Prevention, room B–133, 451 Seventh Street SW., Washington, DC 20410; telephone 1–800–RID–LEAD (1 800–743–5323). TDD numbers of the hearing impaired are: (202) 708–9300 (not a toll-free number) or 1–800–877–8339.

SUPPLEMENTARY INFORMATION: On April 21, 1994, the Department published a Notice of Funding Availability for Lead-Based Paint Hazard Control in Priority Housing (FR–3643) in the Federal Register at 59 FR 19880 ("NOFA"). The NOFA announced the availability of $142 million for grants to States and local governments. The NOFA also stated that to be considered for funding, an original and two copies of the application must be physically received in the Office of Lead-Based Paint Abatement and Poisoning Prevention in Washington no later than 3:00 p.m. Eastern Time on July 6, 1994.

For the three days immediately prior to the date that applications were due under the NOFA, July 4 through July 6, East Central Illinois, specifically Southeastern Cook County, Will County and Kankakee County, were subjected to severe weather conditions, which disrupted electrical service to many of the communities in this part of Illinois.

Accordingly, due to a weather emergency and a prolonged regional power outage, the Department is extending the deadline of 3:00 pm Eastern Time on July 6, 1994 for submission of applications under the NOFA for Southeastern Cook County, Will County and Kankakee County, Illinois. The Department will accept applications received from this region by 3:00 pm Eastern Time on July 7, 1994 if (1) the applicant submits a certification demonstrating that the applicant's ability to prepare or submit the application was substantially impaired by the above-described power outage; and (2) the Department approves the certification.

Dated: August 3, 1994.

Henry G. Cisneros,

Secretary.

[FR Doc. 94–19513 Filed 8–9–94; 8:45 am]

BILLING CODE 4210–32–M

Office of the Assistant Secretary for Housing-Federal Housing Commissioner

[Docket No. N–94–3802; FR–3741–N–01]

Availability of Mid-Course Correction for Low-Income Housing Preservation and Resident Homeownership (LIHPRHA) and Emergency Low-Income Housing Preservation Act (ELIHPA) Programs

AGENCY: Office of the Assistant Secretary for Housing-Federal Housing Commissioner, HUD.

ACTION: Notice of amended processing instructions.

SUMMARY: This notice provides a summary of HUD Notice 94–42, which provides amended processing instructions for the Low-Income Housing Preservation and Resident Homeownership (LIHPRHA) and Emergency Low-Income Housing Preservation Act (ELIHPA) Programs (jointly referred to as the "Preservation Program"). These processing instructions result from interim changes to the Preservation Program. Additional background information for the changes is provided in this summary.

DATES: The notice was signed by the FHA Commissioner on June 6, 1994.

ADDRESSES: To obtain copies of Notice H94–42, please call HUD's On Demand Printing Center at 1–800–767–7468, or the Multifamily Preservation Division in HUD Headquarters at (202) 708–2300 or (202) 708–0035. Hearing- or speech-impaired persons may use the Telecommunications Device for the Deaf (TDD) by calling (202) 708–4594 (other than the "800" number, telephone numbers are not toll-free).

FOR FURTHER INFORMATION CONTACT: Frank Malone, Director, Office of Preservation and Property Disposition, Department of Housing and Urban Development, Room 6284, 451 Seventh Street, SW, Washington, DC 20410; telephone (202) 708–3555. To provide service for persons who are hearing- or speech-impaired, this number may be reached via TDD by dialing the Federal Information Relay Service on 1–800–877–TDDY (1–800–877–8339) or 202–708–9300. (Except for the TDD number, telephone numbers are not toll-free.)

SUPPLEMENTARY INFORMATION: Accordingly, the following summarizes Notice H94–42):

Regional Directors of Housing
Field Office Directors of Housing Development, Field Office Directors of Housing Management
Chief Loan Management Officers
Chief Property Officers
NOTICE H94–42 (HUD)
ISSUED 6/6/94
EXP. 6/30/95
Cross References: 4360.6, 4465.1, 4350.1, H 91–29, H 92–11, H 92–54, 4185.1, H 93–21, H 93–94

Subject: Mid-Course Correction II (MCCII)—For Low Income Housing Preservation and Resident Homeownership (LIHPRHA) and Emergency Low Income Housing Preservation Act (ELIHPA) Programs

This Notice sets forth amended processing instructions for Title II and Title VI.

Title II has over 4 years of operating experience and Title VI has over a year and a half of operating experience. During this time, we have received numerous suggestions and comments from the Field as well as the industry regarding program changes. After reviewing these suggestions and comments, we have determined that a number of policies and instructions set forth in the current Notices and HUD Handbook 4350.6 should be revised to speed the delivery of the programs and better serve our clientele.

In preparing these instructions, we were aware of the problems some Offices were experiencing coordinating the different review functions, which has in some cases made the program more difficult to administer. We have assembled a combined Housing Management-Housing Development preservation unit to work exclusively on this program. This unit has proven beneficial in understanding and providing solutions to the different review functions. This Notice contains instructions for both the Production and Asset Management Branches. It is hoped that combining these instructions will eliminate some of the coordination problems, provide additional processing tools and the administrative flexibility needed to better administer the program.

Applicability

The following language replaces that published in this part of MCCII, because some public commenters claim that the language was ambiguous:

These instructions apply to all Title II and Title VI processing stages not already completed by June 6, 1994, the issuance date of this notice.

If an owner or purchaser made a submission prior to June 6, 1994, or the HUD Field Office did an analysis or issued a decision prior to June 6, 1994, the submission, analysis, or decision *need not* be revised. The owner or purchaser *may*, at its option, request that it be allowed to make a new submission or that HUD staff do a new analysis or make a new decision based on MCCII. If an owner requests further processing by HUD staff, it should include with the request authorization to extend the processing period sufficiently, if applicable. All reasonable requests should be honored by the HUD Field Office staff. In no case will HUD staff require a new submission; nor will it unilaterally reanalyze or make a new decision where such action has already been completed.

(**Note:** In no case will the department grant a waiver to sue pre-MCCII guidance if the owner submitted the Initial Notice of Intent after June 6, 1994.)

Summary of Notice

This Notice describes interim changes to the Preservation Program: Title II and Title VI, Development and Management issues. These changes will eventually be integrated into permanent formats such as Handbooks and Guidelines. For purposes of brevity, this Notice is being referred to on "Mid-Course Correction Notice II" (MCCII). A synopsis of the changes follow.

I. Preservation Manager will be Appointed in Each Office Processing Preservation Cases

II. Title II Processing will More Closely Approximate Title VI Processing

—Greater stress is being placed on tenant notification and input.
—PCNAs will be conducted after submission of Notice of Intent on projects that have submitted a 9608B.
—Owner may choose to appraise the project and have the appraisal reviewed prior to submission of POA.

III. Changes to Both Title II and Title VI Processing

Tenant Notification

—CFS/TRACS must be accessed for information upon receipt of NOI.
—Increased emphasis is being placed on tenant notification and input.
—Revised and additional letters to tenants are being provided.

PCNAs, Repairs, and Reserve for Replacement Accounts

—PCNAs will be done in a prescribed format and will include a summary of the PCNA analysis.
—Required Repair requirements are amended:

(i) Operational and functional items may be repaired, but not replaced.

(ii) Inconsistent items must be corrected.

(iii) Definitions of terms used in the PCNA notice are provided.

—There is a revised method for computing the initial deposit to the reserve for replacement account.

(i) The initial deposit will provide for items whose anticipated useful life will expire within 5 years and for major items in years 6 through 10.

(ii) A 100 percent replacement cost estimate is made for items whose useful life is anticipated to expire within 5 years.

—There is a revised method for determining the adequacy of the existing replacement reserve account.

(i) The determination will be made by Asset Management staff and the Director of Multifamily Housing.

(ii) Owners are required to do ongoing assessments of the reserve for replacement account.

—An Owner may begin making repairs once HUD's PCNA is received. Prior to making repairs, the Owner must:

(i) Inform HUD of its intent to start.

(ii) Request a pre-construction conference.

(iii) Provide a written plan for completing repairs.

—When repairs are completed before submission of the POA application:

(i) No inspection and modifications will be made to the PCNA until the POA application is received by HUD.

(ii) The provisions of Davis-Bacon *may or may not* be applicable to the completed repairs depending on compliance with the written plan.

—Existing project replacement reserve funds may be used to replace items scheduled to be replaced or repaired in the PCNA work write-up. They must be completed before submission of the POA application.
—Inspection fee requirements have been revised.

Section 241(f) Loan Processing

—An owner may propose improvements to the property that exceed the scope of repairs in the PCNA work write-up.

(i) Types of items that may or may not be included are listed.

(ii) Valuation technical staff will develop a list of acceptable amenities for each market area.

(iii) HUD technical staff will evaluate proposed improvements and estimated costs.

—Contingency Reserve.

(i) A 10 percent contingency will be established for all repairs and improvements in nonprofit transfer projects.

(ii) A contingency reserve will be established for substantial rehabilitation projects.

—Owners are required to submit an Estimate of Progress Schedule.

IV. Changes Made to Title VI Processing Only

—Clarification of negotiation option before third appraisal.
—The definition of multifamily rental housing under extension preservation value has been expanded to include some types of elderly housing.
—The concept of Project Specific Rents (PSR) is introduced and is distinguished from Prevailing Market Rents (PMR).

(i) PMR reflects prevailing market amenities.

(ii) PSR reflects the subject project characteristics and is the rent non-subsidized tenants would be willing to pay.

(iii) PSR is the cap on Total Tenant Payment that the owner requests to use at the project if it is lower than FMR.

(iv) PSR must be updated each year if it is to be used.

(v) PSR is the maximum Section 8 Contract rents to be used at POA approval in Title II projects.

—Federal Cost Limit is being frozen at the amount determined on Form HUD–9607 at the appraisal stage.
—Field Offices will submit all Form HUD–9607s to Preservation Division.
—Newspapers and newsletters without significant circulation will not be used to advertise sale of Preservation projects.
—Credit approval for nonprofit purchasers is moved to the receipt of a bona fide offer.
—Consultant fees will be approved simultaneously with nonprofit purchaser credit approval.
—A combined checklist is provided for TPA/241(f)/POA applications.

V. Preservation Technical Assistance Grants.

—Expedited processing is encouraged.
—Nonprofit purchasers may request Section 241(f) application fees in their PTAG applications.
—Revision of Exhibits 3, 6, and 7 to be substituted in the application package.

VI. Section 241(f) Loan Processing.

—The requirement for a Section 241(f) equity loan escrow is not changed.
—A construction escrow to be funded by the owner is required for all Section 241(f) loans. However, a nonprofit mortgagor may use the 10 percent contingency reserve to meet this requirement.
—Transaction expenses eligible for a Section 241(f) loan are described.
—Debt Service Coverage requirements.

(i) 90 percent for equity portion of loan in Title II and VI.

(ii) 95 percent for rehabilitation portion of any loan and for Title VI acquisition loans.

(iii) Amortization period for Section 241(f) equity loans ranges from 20 to 40 years.

(iv) Amortization period for Section 241(f) acquisition loan remains 40 years.

VII. POA Implementation Changes

—Requirements are provided for the summary of the POA to be given to tenants.
—Allowable oversight costs for nonprofit organizations are provided.
—Basic costs are described.
—Owner options for tenant rent phase-in are described.

—Tenants may change designations on the tenant profile if income changes.

VIII. Office Program Monitoring

—An individual must be designated in each Office to enter and access MPPS to retrieve project information.
—Any information HUD provides to an owner is available through the Freedom of Information Act.
—A log must be maintained of disseminated information.
—Liaisons should be set up with State and local governments for assistance in disseminating information.

Authority: 42 U.S.C. 4101 *et seq.*; 42 U.S.C. 3535(d).

Dated: August 3, 1994.

Nicolas P. Retsinas,

Assistant Secretary for Housing-Federal Housing Commissioner.

[FR Doc. 94–19514 Filed 8–9–94; 8:45 am]

BILLING CODE 4210–27–M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[NV–030–4333–04; Notice NV–030–94–06]

Temporary Closure of Public Lands; Nevada

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of the temporary closure of certain public lands and roads for the 1994 ACERBIS International Nevada Rally.

SUMMARY: Certain public lands in the Carson City District, Nevada in Mineral and Churchill Counties, will be temporarily closed to the public while the 1994 International Nevada Rally motorcycle event is in progress.

EFFECTIVE DATES: Aug 15 and 16, 1994.

FOR FURTHER INFORMATION CONTACT: Tom Abbett, Outdoor Recreation Planner, Carson City District Office, 1535 Hot Springs Road, Suite 300, Carson City, Nevada 89706. Telephone (702) 885–6125.

SUPPLEMENTARY INFORMATION: Narrow dirt and gravel road sections of the 1994 Nevada Rally will be temporarily closed to other public traffic for up to four (4) hours while competitors are on the course. This action is necessary for public and participant safety.

The event will cross Carson City District public land from Mina to Fallon on August 15, and from Fallon to the New Pass Range on August 16, 1994. The public lands to be closed are those lands within 50 feet of centerline of single land roads and ways used for the 1994 ACERBIS International Nevada Rally, as identified on official event maps and signed in the field. A route map can be obtained from Tom Abbett at the contact address. The time and location of the closure will change with the progress of the event.

This closure does not apply to Federal or State routes but does apply to County maintained dirt roads across public land where necessary for public safety. The event permittee is responsible for monitoring, signing, and managing the course closures. BLM law enforcement rangers will enforce the closures on lands under BLM jurisdiction. The closure applies to all public use except for event participants and officials, emergency and law enforcement personnel, or activities in designated spectator and pit areas.

The authority for this action is 43 CFR 8364.1. Persons who violate this closure notice are subject to arrest and, upon conviction, may be fined not more than $1,000 and/or imprisoned for not more than 12 months.

Dated: August 3, 1994.

Karl L. Kipping,

Acting District Manager.

[FR Doc. 94–19506 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–HC–M

[OR–943–4210–06; GP4–235; OR–48510(WASH)]

Termination of Proposed Withdrawal; Washington

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: The United States Department of Agriculture, Forest Service, has canceled its application to withdraw 1,750 acres of National Forest System lands in the Gifford Pinchot and Snoqualmie National Forests for the extension of the White Pass Recreation Area. This action will terminate the proposed withdrawal. The lands are included in another existing proposed withdrawal or subject to prior existing rights and will remain closed to mining. The lands have been and remain open to mineral leasing.

DATES: September 9, 1994.

FOR FURTHER INFORMATION CONTACT: Donna Kauffman, BLM Oregon/Washington State Office, P.O. Box 2965, Portland, Oregon 97208, 503–280–7162.

SUPPLEMENTARY INFORMATION: A Notice of Proposed Withdrawal was published in the **Federal Register**, 57 FR 33006, July 24, 1992, as corrected by 57 FR 38855, August 27, 1992, which segregated the lands described therein from location or entry under the mining laws, subject to valid existing rights. The purpose of the proposed withdrawal was to protect the extension of the White Pass Recreation Area. The applicant agency has determined that the proposed withdrawal is no longer needed and has canceled the application in its entirety as to the following described lands: Willamette Meridian

Snoqualmie and Gifford Pinchot National Forests

T. 13 N., R. 11 E., unsurveyed,
Sec. 1, that portion of the N½ lying northerly of the withdrawal for State Highway 12 (PLO 2434);
Sec. 2, that portion of the N½ lying outside the William O. Douglas Wilderness Area;
Sec. 10, that portion of the E½ lying southerly of the withdrawal for State Highway 12 (PLO 2434);
Sec. 11, S½S½;
Sec. 12, that portion of the S½SW¼ lying outside the Goat Rocks Wilderness Area;
Sec. 14, that portion lying outside the Goat Rocks Wilderness Area;
Sec. 15, that portion lying outside the Goat Rocks Wilderness Area;
Sec. 22, that portion lying outside the Goat Rocks Wilderness Area;
Sec. 23, that portion lying outside the Goat Rocks Wilderness Area.
T. 14 N., R. 11 E., unsurveyed,
Sec. 35, that portion lying outside the William O. Douglas Wilderness Area;
Sec. 36, those portions of the S½SW¼ and SW¼SE¼ lying outside the William O. Douglas Wilderness Area.

The areas described aggregate approximately 1,750 acres in Lewis and Yakima Counties.

At 8:30 a.m. on September 9, 1994, the proposed withdrawal will be terminated in its entirety. The lands remain closed to mining by another existing proposed withdrawal or by prior existing rights.

Dated: July 26, 1994.

Catherine H. Crawford,

Acting Chief, Branch of Lands and Minerals Operations.

[FR Doc. 94–19469 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–33–P

[OR–943–4210–06; GP4–150; OR–50699(WASH)]

Notice of Proposed Withdrawal; Washington

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice.

SUMMARY: The National Park Service proposes to withdraw 3.25 acres of public land to protect the fragile, unique, and endangered resources at Cape Johnson in Clallam County, Washington. This notice closes the land

for up to two years from surface entry, mining, and mineral leasing.

FOR FURTHER INFORMATION CONTACT: Donna Kauffman, BLM Oregon/Washington State Office, P.O. Box 2965, Portland, Oregon 97208–2965, 503–280–7162.

SUPPLEMENTARY INFORMATION: On July 18, 1994, a petition was approved allowing the National Park Service to file an application to withdraw the following described public land from settlement, sale, location, or entry under the general land laws, including the United States mining laws (30 U.S.C. Ch. 2) and the mineral leasing laws, subject to valid existing rights:

Willamette Meridian

T. 28 N., R. 15 W.,
Sec. 6, lot 1.

The area described contains 3.25 acres in Clallam County.

The purpose of the proposed withdrawal is to protect the fragile, unique, and endangered resources at Cape Johnson. Until an application is filed, no further action will be taken on this proposal.

For a period of two years from the date of publication of this notice in the **Federal Register**, the land will be segregated as specified above unless the application is denied or canceled or the withdrawal is approved prior to that date. The temporary use which may be permitted during this segregative period is dispersed, non-motorized recreation that is consistent with the Olympic National Park designated wilderness.

The temporary segregation of the land in connection with a withdrawal application or proposal shall not affect administrative jurisdiction over the land, and the segregation shall not have the effect of authorizing any use of the land by the National Park Service.

Dated: July 29, 1994.

Catherine H. Crawford,

Acting Chief, Branch of Lands and Minerals Operations.

[FR Doc. 94–19468 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–33–P

Fish and Wildlife Service

Availability of an Environmental Assessment/Habitat Conservation Plan and Receipt of an Application for an Incidental Take Permit for the Proposed Davenport Ranch Development, Austin, Travis County, TX

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice.

SUMMARY: Davenport Limited (Applicant) has applied to the Fish and Wildlife Service (Service) for an incidental take permit pursuant to Section 10(a)(1)(b) of the Endangered Species Act (Act). The Applicant has been assigned permit number PRT–782829. The requested permit, which is for a period not to exceed 20 years, would authorize the incidental take of the endangered black-capped vireo (*Vireo atricapillus*). The proposed take would occur as a result of the construction and operation of a residential development within the 210-acre tract of lands known as Davenport Ranch west of Austin, Travis County, Texas.

The Service has prepared an environmental assessment/habitat conservation plan (EA/HCP) for the incidental take permit application. A determination of jeopardy to the species or a finding of no significant impact (FONSI) will not be made before 30 days from the date of publication of this notice. This notice is provided pursuant to Section 10(c) of the Act and National Environmental Policy Act regulations (40 CFR 1506.6)

DATES: Written comments on the application and EA/HCP should be received on or before September 9, 1994.

ADDRESSES: Persons wishing to review the application may obtain a copy by writing to the Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103. Persons wishing to review the EA/HCP may obtain a copy by contacting Mr. Bryan Arroyo, Ecological Services Field Office, U.S. Fish and Wildlife Service, 611 East Sixth Street, Suite 407, Austin, Texas 78701 (512/482–5436). Documents will be available by written request for public inspection, by appointment, during normal business hours (8:00 to 4:00) at the Southwest Regional Office, Division of Endangered Species/Permits, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103, or the Ecological Services Field Office (9:00 to 4:30), U.S. Fish and Wildlife Service, 611 East Sixth Street Suite 407, Austin, Texas 78701. Written data or comments concerning the application and EA/HCP should be submitted to Ms. Jana Grote, Acting Field Supervisor, Ecological Services Field Office, Austin, Texas (see **ADDRESSES** above). Please refer to permit number PRT–782829 when submitting comments.

FOR FURTHER INFORMATION CONTACT: Mr. Bryan Arroyo or Mr. Joe Johnston at the above Austin Ecological Services Field Office address.

SUPPLEMENTARY INFORMATION: Section 9 of the Act prohibits the "Taking" of endangered species, like the black-capped vireo. However, the Service, under limited circumstances, may issue permits to take endangered wildlife species if such taking is incidental to, and not the purpose of otherwise lawful activities. Regulations governing permits for endangered species are at 50 CFR 17.22.

The Applicant plans to build a residential development located west of Austin approximately 2 miles north of the intersection of Highway 360 and Farm to Market road 2244 in Travis County, Texas. The development will occupy approximately 107.8 acres with 22.5 acres proposed as parkland and 13.9 acres as greenbelt. These activities will permanently eliminate about 33 acres of occupied and/or suitable black-capped vireo habitat. The Applicant proposes to mitigate the incidental take by avoiding direct impacts to vireos, preserving undeveloped areas in their natural state, and by creating, enhancing, and maintaining 100 acres of black-capped vireo habitat offsite.

The Applicant considered five alternatives but rejected four of them because they were not economically viable.

James A. Young,

Assistant Regional Director, Ecological Services, Southwest Region (2).

[FR Doc. 94–19476 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–55–P

Notice of Receipt of Applications for Permit

The following applicants have applied for a permit to conduct certain activities with endangered species. This notice is provided pursuant to Section 10(c) of the Endangered Species Act of 1973, *as amended* (16 U.S.C. 1531, *et seq.*):

Applicant: Thomas Fox, Greensboro, PA, PRT–793170

The applicant requests a permit to import the sport-hunted trophy of one male bontebok (*Damaliscus dorcas dorcas*) culled from the captive herd maintained by the Ciskei Government at the Tsolwana Game Reserve, Queenstown, Ciskei, Republic of South Africa, for the purpose of enhancement of the survival of the species.

Written data or comments should be submitted to the Director, U.S. Fish and Wildlife Service, Office of Management Authority, 4401 North Fairfax Drive, Room 420(c), Arlington, Virginia 22203

and must be received by the Director within 30 days of the date of this publication.

Documents and other information submitted with these applications are available for review, *subject to the requirements of the Privacy Act and Freedom of Information Act*, by any party who submits a written request for a copy of such documents to the following office within 30 days of the date of publication of this notice: U.S. Fish and Wildlife Service, Office of Management Authority, 4401 North Fairfax Drive, Room 420(c), Arlington, Virginia 22203. Phone: (703/358–2104); FAX: (703/358–2281).

Dated: August 5, 1994.

Caroline Anderson,

Acting Chief, Branch of Permits, Office of Management Authority.

[FR Doc. 94–19497 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–55–P

Notice of Availability of the Draft San Marcos and Comal Springs and Associated Aquatic Ecosystems (Revised) Recovery Plan for Public Review and Comment

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of document availability and public comment period.

SUMMARY: The U.S. Fish and Wildlife Service (Service) announces the availability for public review of the Draft San Marcos and Comal Springs and Associated Aquatic Ecosystems (Revised) Recovery Plan (Draft Plan). This Draft Plan addresses four endangered species: the San Marcos gambusia (*Gambusia georgei*), the fountain darter (*Etheostoma fonticola*), Texas wild-rice (*Zizania texana*), and the Texas blind salamander (*Typhlomolge rathbuni*); and one threatened species, the San Marcos salamander (*Eurycea nana*). These species have a limited distribution within the Comal ecosystem in Comal County, the San Marcos ecosystem in Hays and part of Caldwell Counties and/or the Edwards Aquifer. All five aquatic species depend on water from the underlying Edwards Aquifer. The Service solicits review and comment from the public on this Draft Plan.

DATES: Comments on the Draft Plan must be received on or before October 31, 1994, to assure consideration by the Service.

ADDRESSES: Persons wishing to review the Draft Plan may obtain a copy by contacting the U.S. Fish and Wildlife Service, Supervisor, Ecological Services Field Office, 611 E. Sixth Street, Room 407, Austin, Texas 78701; (512) 482–5436.

Written comments and materials regarding the plan should be addressed to the Supervisor at the above address. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Alisa Shull, Listing and Recovery Coordinator, telephone (512) 482–5436 (see **ADDRESSES** above).

SUPPLEMENTARY INFORMATION:

Background

Restoring endangered or threatened animals or plants to the point where they are again secure, self-sustaining members of their ecosystems is a primary goal of the U.S. Fish and Wildlife Service's endangered species program. To help guide the recovery effort, the Service is working to prepare recovery plans for most listed species native to the Unites States. Recovery plans describe actions considered necessary for conservation of the species, establish criteria for recovery levels for downlisting or delisting them, and estimate time and cost for implementing recovery measures needed.

The Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), requires development of recovery plans for listed species unless such a plan would not promote conservation of a particular species. Section 4(f) of the Act, as amended in 1988, requires that public notice and an opportunity for public review and comment be provided during recovery plan development. The Service will consider all information presented during the public comment period prior to approval of each new or revised recovery plan. The Service and other Federal agencies will also take these comments into account in the course of implementing approved recovery plans.

This recovery plan addresses recovery needs of five species which share a common habitat area by using an ecosystem approach that addresses conservation of basic habitat features the organisms share. The Draft Plan also addresses more localized or species specific problems and needs.

The fountain darter was listed as endangered on October 13, 1970 (35 FR 16047) and critical habitat was designated on July 14, 1980 (45 FR 47355). The fountain darter is a small fish that inhabits both the Comal and San Marcos ecosystems and was described by early collectors to be abundant in both ecosystems. Fountain darters prefer constant temperature and undisturbed stream floor habitats that have a mixture of submergent plants and mats of filamentous algae.

The San Marcos gambusia was listed as endangered with critical habitat on July 14, 1980 (45 FR 47355). This fish has only been known to occur in a small segment of the San Marcos River and apparently prefers relatively shallow, quiet, shaded, and thermally constant waters over a muddy substrate. The San Marcos gambusia has not been relocated since 1982, although several surveys have been made in its historical habitat.

The San Marcos salamander was listed as threatened with critical habitat on July 14, 1980 (45 FR 47355). It is a small salamander that remains aquatic throughout its life cycle. The San Marcos salamander occurs in rocky or sand and gravel areas with thermally constant, flowing water near spring openings. Habitat for this salamander usually includes aquatic mosses or filimentous algae that provide cover and food. San Marcos salamanders have been found near all major spring openings scattered throughout Spring Lake at headwaters of the San Marcos River system, and extending into rocky habitat below Spring Lake Dam.

Texas wild-rice is an aquatic plant that was listed as endangered on April 26, 1978, (43 FR 17910) and critical habitat designated on July 14, 1980 (45 FR 47355). This plant is only known from the San Marcos River system where it was once abundant in Spring Lake and the river. By 1967, the species had declined significantly in abundance and distribution. Plants usually grow underwater except for emergent flowering stalks, and are found in constant temperature, flowing water of varying depths.

The Texas blind salamander was listed as endangered on March 11, 1967 (32 FR 4001). It is a small aquatic, unpigmented salamander with reduced eyes that are cave-adapted. The Texas blind salamander's habitat is in water-filled cavernous areas in the San Marcos portion of the Edward's Aquifer. The species has been collected and studied through collections and observations made from caves with pools that access the underground water table, and from well samples.

The most imminent threat facing the five listed aquatic species is loss of stream flows and/or water levels in the Edward's Aquifer necessary to sustain the Edward's Aquifer and associated stream ecosystems. The species are also threatened by pollution from runoff or discharges associated with urbanization of surrounding areas. Additional threats

include impacts from recreational activities, predation, and habitat destruction or modification caused by human activities.

The objective of the Draft Plan is to secure the survival of these endangered or threatened species in their native ecosystems. Downlisting criteria are given in the plan for two of the five species. The Draft Plan addresses broad regional threats to ecosystem integrity as well as local threats to each species.

Regional recovery efforts outlined in the Draft Plan include protection of the Edward's Aquifer, the San Marcos springs and river ecosystem, and the Comal springs and river ecosystem. The Draft Plan addresses need for a mechanism to manage groundwater withdrawals in order to assure continued springflows, and identification and management of existing or potential impacts to water quality in the Edwards Aquifer and the Comal and San Marcos River ecosystems.

To address more local threats, the Draft Plan recommends development of local spring and river management plans, control of non-native species, and cooperative work with local landowners and water users to alleviate threats to the affected species and their habitat. Other recovery efforts outlined include developing propagation techniques and maintaining a broodstock that represents genetics of existing wild populations. The Draft Plan includes tasks to continue monitoring the status of all five species and their habitats, research to determine the biological and ecological requirements of each species, studies to evaluate threats and develop management techniques of each species, and inform the public of significance of these ecosystems to maintaining the Region's economy and quality of life for all.

Public Comments Solicited

The Service solicits written comments on the draft recovery plan described. All comments received by the date specified above will be considered prior to approval of the plan.

Author

The primary author of this notice is Kathryn Kennedy, Botanist, telephone (512) 482–5436 (see **ADDRESSES** above).

Authority

The authority for this action is Section 4(f) of the Endangered Species Act, 16 U.S.C. 1533(f).

Dated: August 2, 1994.

Lynn B. Starnes,

Acting Regional Director.

[FR Doc. 94–19436 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–55–M

Availability of an Environmental Assessment/Habitat Conservation Plan and Receipt of an Application for an Incidental Take Permit for the Proposed Westminster Glen Subdivision, Austin, Travis County, TX

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of Availability.

SUMMARY: MaBe, Inc. (Applicant) has applied to the Fish and Wildlife Service (Service) for an incidental take permit pursuant to Section 10(a)(1)(B) of the Endangered Species Act (Act). The Applicant has been assigned permit number PRT–793122. The requested permit, which is for a period not to exceed 10 years, would authorize the incidental take of the endangered golden-cheeked warbler (*Dendroica chrysoparia*). The take would occur as a result of the construction of and operation of a residential development on a 270-acre tract in Austin, Travis County, Texas.

The Service has prepared an environmental assessment/habitat conservation plan (EA/HCP) for the incidental take permit application. A determination of jeopardy to the species or a finding of no significant impact (FONSI) will not be made before 30 days from the date of publication of this notice. This notice is provided pursuant to Section 10(c) of the Act and National Environmental Policy Act regulations (40 CFR 1506.6).

DATES: Written comments on the application and EA/HCP should be received on or before September 9, 1994.

ADDRESSES: Persons wishing to review the application may obtain a copy by writing to the Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103. Persons wishing to review the EA/HCP may obtain a copy by contacting Mr. Bryan Arroyo, Ecological Services Field Office, U.S. Fish and Wildlife Service, 611 East Sixth Street, Suite 407, Austin, Texas 78701 (512/482–5436). Documents will be available by written request for public inspection, by appointment, during normal business hours (8:00 to 4:00) at the Southwest Regional Office, Division of Endangered Species/Permits, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103, or the Ecological Services Field Office (8:00 to 4:30), U.S. Fish and Wildlife Service, 611 East Sixth Street Suite 407, Austin, Texas 78701. Written data or comments concerning the application and EA/HCP should be submitted to Ms. Jana Grote, Acting Field Supervisor, Ecological Services Field Office, Austin, Texas (see **ADDRESSES** above). Please refer to file number PRT–793122 when submitting comments.

FOR FURTHER INFORMATION CONTACT: Mr. Bryan Arroyo at the above Austin Ecological Services Field Office address.

SUPPLEMENTARY INFORMATION: Section 9 of the Act prohibits the "Taking" of endangered species, like the golden-cheeked warbler. However, the Service, under limited circumstances, may issue permits to take endangered wildlife species if such taking is incidental to, and not the purpose of otherwise lawful activities. Regulations governing permits for endangered species are at 50 CFR 17.22.

The Applicant plans to build a residential development located northwest of Austin near the intersection of Ranch Road 2222 and City Park Road in Travis County, Texas. The development will occupy approximately 116 acres with the remaining 153 acres proposed as a conservation area. These activities will permanently eliminate about 107 acres of occupied golden-cheeked warbler habitat. The Applicant proposes to mitigate the incidental take via preservation and management of about 153 acres as a golden-cheeked warbler preserve through a conservation easement. Additionally, the Applicant will conduct territorial mapping surveys on lands adjacent to the proposed development, provide operating and maintenance funds for the lands (on-site 153 acres) to be preserved, conduct the necessary biological surveys, minimize clearing of lots, establish a 300-foot buffer of no construction from a golden-cheeked warbler territory during the breeding season, and revegetate with native plant species.

The Applicant considered three alternatives but rejected two of them because they were not economically viable.

James A. Young,

Assistant Regional Director, Ecological Services, Southwest Region (2).

[FR Doc. 94–19477 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–55–P

Notice of Availability: Records of Decision and Statement of Findings for the Environmental Impact Statement on Reintroduction of the Gray Wolf to Yellowstone National Park and Central Idaho

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of availability.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA), the United States Department of the Interior, U.S. Fish and Wildlife Service (Service) announces the availability of the Records of Decision and Statement of Findings upon consideration of the Final Environmental Impact Statement (FEIS) for the reintroduction of gray wolves to Yellowstone National Park and central Idaho. The FEIS was filed with the Environmental Protection Agency on May 4, 1994, and its availability was announced to the public on May 13, 1994.

DATES: The Record of Decision and Statement of Findings was approved by the Secretary of the Interior on June 15, 1994. A concurring Record of Decision was approved by the Secretary of Agriculture on July 19, 1994.

ADDRESSES: The documents announced in this notice are available from: Gray Wolf Reintroduction, U.S. Fish and Wildlife Service, P.O. Box 8017, Helena, Montana 59601.

FOR FURTHER INFORMATION CONTACT: Mr. Edward E. Bangs, at the above address, or telephone (406) 449–5202.

SUPPLEMENTARY INFORMATION:

Background

Under the provisions of NEPA, the Service prepared an environmental impact statement (EIS) for the reintroduction of gray wolves to Yellowstone National Park and central Idaho. The conference report (House Report No. 102–256) that accompanied the 1992 U.S. Department of the Interior appropriations bill (Public Law 102–154) directed the Service to prepare a draft EIS on wolf reintroduction in Yellowstone National Park and central Idaho, in consultation with the National Park Service and Forest Service. The conference report further directed that the EIS cover a broad range of alternatives and follow normal distribution patterns including appropriate Congressional distribution. The 1993 U.S. Department of the Interior appropriations bill (Public Law 102–381) directed the Service to finalize the EIS and stated that it expected the preferred alternative to conform to existing law.

The Service evaluated and considered alternatives for the long range recovery and management of wolf populations in the Yellowstone National Park and central Idaho areas as presented in the FEIS and reviewed and considered public and agency comments. Based upon that evaluation and review, the Service selected the Proposed Action Alternative as described in the FEIS for implementation. Reintroduced populations of gray wolves are proposed to be designated as nonessential experimental populations according to the provisions of section 10(j) of the Act. A proposed nonessential experimental population rule will be published in the **Federal Register** and provided for review by the public. Based upon public comment and the results of a continuing Service-led monitoring program to document wolf breeding activity in Montana, Idaho, and Wyoming, the Service will decide whether to issue and implement a final rule as soon as practicable. The process to establish these regulatory guidelines and the opportunity for public comment will be widely publicized. This determination was based on a thorough analysis of environmental, social, economic, and similar considerations.

On June 15, 1994, the Secretary of the Interior approved a Statement of Findings and Record of Decision adopting the selected alternative. On July 19, 1994, the Secretary of Agriculture approved a concurring Record of Decision. These documents are available from the office named above under **ADDRESSES**.

Dated: August 4, 1994.

Mollie H. Beattie,

Director, U.S. Fish and Wildlife Service.

[FR Doc. 94–19452 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–55–M

Minerals Management Service

Information Collection Submitted to the Office of Management and Budget (OMB) for Review Under the Paperwork Reduction Act

The proposal for the collection of information listed below has been submitted to OMB for approval under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35). Copies of the proposed collections of information and related forms may be obtained by contacting the Bureau's Clearance Officer at the telephone number listed below. Comments and suggestions on the proposal should be made directly to the Bureau Clearance Officer and to the Office of Management and Budget; Paperwork Reduction Project (1010–0006); Washington, D.C. 20503, telephone (202) 395–7340, with copies to Chief, Engineering and Standards Branch; Engineering and Technology Division; Mail Stop 4700; Minerals Management Service; 381 Elden Street; Herndon, Virginia 22070–4817.

Title: Leasing of Sulphur or Oil and Gas in the Outer Continental Shelf (30 CFR Part 256)

OMB approval number: 1010–0006

Abstract: Respondents submit information necessary for MMS to determine which tracts will be leased, to identify areas for environmental study and further consideration for leasing, and to determine if the applicant or bidder for an Outer Continental Shelf (OCS) lease is qualified to hold such a lease.

Bureau form numbers: None

Frequency: On occasion

Description of respondents: Federal OCS oil and gas lessees, potential bidders, and the public

Estimated completion time: 3.46 hours (rounded)

Annual responses: 5,300

Annual burden hours: 18,344

Bureau clearance officer: Arthur Quintana, (703) 787–1239.

Dated: July 1, 1994.

E.P. Danenberger,

Acting Deputy Associate Director for Operations and Safety Management.

[FR Doc. 94–19470 Filed 8–9–94; 8:45 am]

BILLING CODE 4310–MR–M

National Park Service

National Register of Historic Places; Notification of Pending Nominations

Nominations for the following properties being considered for listing in the National Register were received by the National Park Service before July 30, 1994. Pursuant to § 60.13 of 36 CFR Part 60 written comments concerning the significance of these properties under the National Register criteria for evaluation may be forwarded to the National Register, National Park Service, P.O. Box 37127, Washington, D.C. 20013–7127. Written comments should be submitted by August 25, 1994.

Antoinette J. Lee,

Action Chief of Registration, National Register.

DISTRICT OF COLUMBIA

District of Columbia State Equivalent

Alban Towers Apartment Building (Apartment Buildings in Washington, DC, MPS), 3700 Massachusetts Ave., NW., Washington, 94001040

Apartment Building at 2225 N Street (Apartment Buildings in Washington, DC,

MPS), 2225 N St., NW., Washington, 94001043
Augusta Apartment Building (Apartment Buildings in Washington, DC, MPS), 1151 New Jersey Ave. (216 New York Ave.), NW., Washington, 94001032
Cairo Apartment Building (Apartment Buildings in Washington, DC, MPS), 1615 Q St., NW., Washington, 94001033
Cathedral Mansions Apartment Buildings (Apartment Buildings in Washington, DC, MPS), 2900, 3000 and 3100 Connecticut Ave., NW., Washington, 94001037
Champlain Apartment Building (Apartment Buildings in Washington, DC, MPS), 1424 K St., NW., Washington, 94001042
Gladstone and Hawarden Apartment Buildings (Apartment Buildings in Washington, DC, MPS), 1419 and 1423 R St., NW., Washington, 94001034
Hampshire Garden Apartment Buildings (Apartment Buildings in Washington, DC, MPS), 4912 New Hampshire Ave., 208, 222, 236 and 250 Farragut St., 4915 3rd St. and 215, 225 and 235 Emerson St., NW., Washington, 94001031
Harrison Apartment Building (Apartment Buildings in Washington, DC, MPS), 704 3rd St., NW., Washington, 94001036
Jefferson Apartment Building (Apartment Buildings in Washington, DC, MPS), 315 H St., NW., Washington, 94001046
Kennedy—Warren Apartment Building (Apartment Buildings in Washington, DC, MPS), 3133 Connecticut Ave., NW., Washington, 94001039
Lafayette Apartment Building (Apartment Buildings in Washington, DC, MPS), 1605–1607 7th St., NW., Washington, 94001044
Luzon Apartment Building (Apartment Buildings in Washington, DC, MPS), 2501 Pennsylvania Ave., NW., Washington, 94001035
Myrene Apartment Building (Apartment Buildings in Washington, DC, MPS), 603 6th St., NW., Washington, 94001041
Ponce de Leon Apartment Building (Apartment Buildings in Washington, DC, MPS), 4514 Connecticut Ave., NW., Washington, 94001038
Roosevelt Apartment Building (Apartment Buildings in Washington, DC, MPS), 1116–1118 F St., NE., Washington, 94001045

ILLINOIS

Cook County

Lincoln Park (Chicago Park District MPS), 2045 Lincoln Park W., Chicago, 94001029

IOWA

Cass County

McWaid, Job A. and Rebecca E., House, Address Restricted, Atlantic vicinity, 94001030

NEW YORK

Orange County

Hillside Cemetery, Mulberry St., Middletown, 94001027

NORTH CAROLINA

Guilford County

Irving Park Historic District (Greensboro MPS), Roughly bounded by Buffalo Cr., Battleground Ave., Cornwallis Dr. and W. Northwood St., Greensboro, 94001050

Henderson County

Coxe, Mary Mills, House, 1210 Greenville Hwy., Hendersonville vicinity, 94001052

Mecklenburg County

Thrift Mill, Former, 8300 Moore's Chapel Rd., Charlotte, 94001049

Pitt County

Ayden Historic District, Roughly bounded by Verna St., Peachtree St., E. College St. and Planters St., Ayden, 94001026

Rowan County

Steele, John, House, 1010 Richard St., Salisbury, 94001051

Wake County

Perry Farm (Wake County MPS), NC 2320 S side, E of jct. with NC 2300, Riley Hill vicinity, 94001025

OREGON

Lane County

Working, James W., Flats, 614 Lawrence St., Eugene, 94001024

Multnomah County

Eugene Apartments, 2030 NW. Flanders St., Portland, 94001023

Yamhill County

Spaulding, Charles K., House, 717 E. Sheridan St., Newberg, 94001022

PENNSYLVANIA

Chester County

Oxford Hotel, Jct. of Market and N. 3rd Sts., Oxford, 94001055

Dauphin County

Harris Switch Tower, Pennsylvania Railroad, 637 Walnut St., Harrisburg, 94001056

Indiana County

Commodore Historic District (Bituminous Coal and Coke Resources of Pennsylvania MPS), Roughly bounded by PA 286, Vanderbilt Ave., Musser St. and Fisher Ave., Green Township, Commodore, 94001057

Lancaster County

Bausman Farmstead (Historic Farming Resources of Lancaster County MPS), 1630 and 1631 Millersville Pike, Lancaster Township, Lancaster, 94001061
Davis, David, Farm (Historic Farming Resources of Lancaster County MPS), 737 Spruce Rd., Earl Township, New Holland, 94001060
Habeck, Christian, Farm (Historic Farming Resources of Lancaster County MPS), 2301 Spring Valley Rd., East Hempfield Township, Lancaster, 94001063
Herr, Christian and Emma, Farm (Historic Farming Resources of Lancaster County MPS), 2131 and 2133 South View Rd., West Lampeter Township, Lancaster, 94001059
Shreiner Farm (Historic Farming Resources of Lancaster County MPS), Oregon Pike N side, 0.3 mi. E of Suncrest Rd., Manheim Township, Lancaster, 94001058
Windom Mill Farm (Historic Farming Resources of Lancaster County MPS), 3407 Blue Rock Rd., Manor Township, Lancaster, 94001062

Westmoreland County

Ligonier Historic District, Jct. of Main and Market Sts., Ligonier, 94001054

SOUTH CAROLINA

Clarendon County

Alderman's 20 Stores in One, 34 and 36 Brooks St., Manning, 94001047
Summerton High School, S. Church St., Summerton, 94001048

Orangeburg County

Trinity Methodist Episcopal Church (Orangeburg MRA), 185 Boulevard NE., Orangeburg, 94001053

VIRGINIA

Charles City County

Poplar Springs, 17300 The Glebe Ln., Charles City vicinity, 94001028

[FR Doc. 94–19440 Filed 8–9–94; 8:45 am]
BILLING CODE 4310–70–M

INTERNATIONAL TRADE COMMISSION

[Investigation No. 337–TA–364]

Certain Curable Fluoroelastomer; Compositions and Precursors Thereof; Designation of Additional Commission Investigative Attorney

Notice is hereby given that, as of this date, Smith R. Brittingham, Esq. and Teresa B. Martinez, Esq. of the Office of Unfair Import Investigations are designated as the Commission investigative attorneys in the above-cited investigation instead of Smith R. Brittingham, Esq.

The Secretary is requested to publish this Notice in the **Federal Register**.

Dated: August 2, 1994.

Lynn I. Levine,

Director, Office of Unfair Import Investigations.

[FR Doc. 94–19489 Filed 8–9–94; 8:45 am]
BILLING CODE 7020–02–P

INTERSTATE COMMERCE COMMISSION

[Finance Docket No. 32537]

Akron Barberton Cluster Railway Company—Acquisition and Operation Exemption—Certain Lines of Consolidated Rail Corporation

Akron Barberton Cluster Railway Company (ABCR), a wholly-owned, noncarrier subsidiary of Wheeling Corporation (Wheeling), has filed a

notice of exemption to purchase and operate certain rail lines and incidental trackage rights of Consolidated Rail Corporation (Conrail) and its affiliate, the Akron and Barberton Belt Railroad Company (A&BB).[1] The Conrail properties consist of approximately 14 miles of rail line and 19 miles of trackage rights located in the vicinity of Akron, OH. The A&BB property consists of approximately 19.4 miles of rail lines in Summit County, OH.

Specifically, the properties involved in the transaction include Conrail's ownership interest, reserved easement, operating and trackage rights in the Akron Secondary, from milepost 8.0 at Cuyahoga Falls, OH to milepost 27.0 at Warwick, OH (as well as sidetracks connecting with Conrail's reserved rights in the Akron Secondary); Conrail's Freedom Secondary, from milepost 190.05 to milepost 192.51 at Kent, OH; and Conrail's Rittman Secondary, from milepost 205.5 at Kenmore to milepost 216.8 at Wadsworth, OH (and connecting sidetracks). In addition, ABCR will acquire A&BB's Barberton Belt Line, Akron Extension, Barberton and Southern Branch, and Fairlawn Extension. Upon consummation of the transaction, ABCR will become a class III rail carrier.[2] The proposed transaction was expected to be consummated on or after July 19, 1994.[3]

Any comments must be filed with the Commission and served on: Terence M. Hynes, Sidley & Austin, 1722 Eye Street, N.W., Washington, D.C. 20006.

This notice is filed under 49 CFR 1150.31. If the notice contains false or misleading information, the exemption is void *ab initio*. Petitions to revoke the exemption under 49 U.S.C. 10505(d) may be filed at any time. The filing of a petition to revoke will not automatically stay the transaction.

Decided: August 1, 1994.

By the Commission, David M. Konschnik, Director, Office of Proceedings.

Vernon A. Williams,

Acting Secretary.

[FR Doc. 94–19545 Filed 8–9–94; 8:45 am]

BILLING CODE 7035–01–P

[1] Conrail owns 50% of the outstanding stock of A&BB. The remaining shares are held by CSX Transportation, Inc. (25%) and The Wheeling & Lake Erie Railway Company (W&LE) (25%).

[2] This proceeding is related to Finance Docket No. 32538, *Wheeling Corporation—Continuance in Control Exemption—Akron Barberton Cluster Railway Company*, wherein Wheeling Corporation has concurrently filed a petition for exemption to continue in control of ABCR when ABCR becomes a rail carrier upon consummation of the transaction described in this notice.

[3] By letter dated July 25, 1994, Counsel for Wheeling and ABCR advised the Commission that the acquisition had been consummated on July 20, 1994.

DEPARTMENT OF LABOR

Women's Bureau and the Office of the Assistant Secretary for Administration and Management; Correction to the Solicitation for Grant Applications (SGA) 94–03, Women in Apprenticeship and Nontraditional Occupations (WA–NTO) Act for Fiscal Year 1994

AGENCY: Women's Bureau, Office of the Assistant Secretary for Administration and Management, DOL.

ACTION: Correction.

SUMMARY: In **Federal Register** notice, Vol. 59, No.124, Wednesday, June 29, 1994 the competition was announced. Since that date, complete SGA packages have been available to the public upon request. Page 12 of the SGA, make the following correction:

To be considered responsive to the Solicitation for Grant Application (SGA), the application must consist of the following separate sections (Note: The technical proposal shall not exceed 30 single side, double spaced, 10 to 12 pitch typed pages. ANY PROPOSALS THAT DO NOT CONFORM TO THESE STANDARDS SHALL BE DEEMED NON-RESPONSIVE TO THIS SGA AND WILL NOT BE EVALUATED.

Each proposal shall include a table of contents and an abstract which shall summarize the proposal in not more than two (2) pages and a full description of the CBO's program for technical assistance, including information required in Section I, (1)–(5) and J1. (a)–(e).

Lawrence J. Kuss,

Grant Officer.

[FR Doc. 94–19544 Filed 8–9–94; 8:45 am]

BILLING CODE 4510–04–M

Office of the Secretary

Advisory Committee on Veterans' Employment and Training; Notice of Establishment

In accordance with the provisions of the Federal Advisory Committee Act and Office of Management and Budget Circular A–63 of March 1974, the Secretary of Labor has established the Advisory Committee on Veterans' Employment and Training.

The Advisory Committee on Veterans' Employment and Training shall: assess the employment and training needs of veterans; determine the extent to which the programs and activities of the Department of Labor are meeting such needs; carry out such other activities that are necessary to make the reports and recommendations required by law; and, not later than July 1 of each year, the Advisory Committee shall submit to the Secretary of Labor a report on the Employment and training needs of veterans.

The Committee shall consist of at least 12, but not more than 18, individuals appointed by the Secretary of Labor to serve as members of the Advisory Committee, consisting of: representatives nominated by veterans' organizations that are chartered by Federal law and have a national employment program; and not more than 6 individuals who are recognized authorities in the fields of business, employment, training, rehabilitation, or labor and who are not employees of the Department of Labor.

The Advisory Committee will report to the Assistant Secretary for Veterans' Employment and Training. It will function solely as an advisory body and in compliance with the provisions of the Federal Advisory Committee Act, and its charter will be filed under the Act.

Interested persons are invited to submit comments regarding the establishment of the Advisory Committee on Veterans' Employment and Training. Such comments should be addressed to: Mr. Thomas S. Keefe, Special Assistant, Office of the Assistant Secretary for Veterans' Employment and Training, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210, telephone (202) 219–9116.

Signed at Washington, DC, this 4th day of August 1994.

Robert B. Reich,

Secretary of Labor.

[FR Doc. 94–19543 Filed 8–9–94; 8:45 am]

BILLING CODE 4510–23–M

Mine Safety and Health Administration

Petitions for Modification

The following parties have filed petitions to modify the application of mandatory safety standards under section 101(c) of the Federal Mine Safety and Health Act of 1977.

1. H. L. & W. Coal Company

[Docket No. M–94–100–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the

application of 30 CFR 75.335 (construction of seals) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. The petitioner requests a modification of the standard to permit alternative methods of seal construction using wooden materials of moderate size and weight due to the difficulty in accessing previously driven headings and breasts containing inaccessible abandoned workings; to accept a design criterion in the 10 psi range; and to permit the water trap to be installed in the gangway seal and sampling tube in the monkey seal for seals installed in pairs. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

2. H. L. & W. Coal Company

[Docket No. M–94–101–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.340 (underground electrical installations) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. As an alternative to removing the batteries and transporting them in the gunboat to the surface for charging, the petitioner proposes to charge batteries on the mine's locomotive when all miners are out of the mine and to have the intake air which is used to ventilate the charging station continue through its normal route to the last open crosscut and into the monkey airway (return). The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

3. H. L. & W. Coal Company

[Docket No. M–94–102–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.360 (preshift examination) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. The petitioner proposes to examine each seal for physical damage from the slope gunboat during the preshift examination after an air quantity reading is taken inby the intake portal and to test for the quantity and quality of air at the intake air split locations off the slope in the gangway portion of the working section. The petitioner proposes to physically examine the entire length of the slope once a month. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

4. H. L. & W. Coal Company

[Docket No. M–94–103–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.364(b)(1), (4), and (5) (weekly examination) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. Due to hazardous conditions and roof falls, certain areas of the intake haulage slope and primary escapeway cannot be traveled safely. The petitioner proposes to examine these areas from the gunboat/slope car with an alternative air quality evaluation at the section's intake level, and to travel and thoroughly examine these areas for hazardous conditions once a month. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

5. H. L. & W. Coal Company

[Docket No. M–94–104–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1100–2(a)(2) (quantity and location of firefighting equipment) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. The petitioner proposes to use only portable fire extinguishers to replace existing requirements where rock dust, water cars, and other water storage are not practical. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

6. H. L. & W. Coal Company

[Docket No. M–94–105–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1200(d) & (i) (mine map) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. The petitioner proposes to use cross-sections instead of contour lines through the intake slope, at locations of rock tunnel connections between veins, and at 1,000 feet intervals of advance from the intake slope and to limit the mapping of mine workings above and below to those present within 100 feet of the vein being mined except when veins are interconnected to other veins beyond the 100 feet limit through rock tunnels. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

7. H. L. & W. Coal Company

[Docket No. M–94–106–C]

H. L. & W. Coal Company, 14 Maple Street, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1202–1(a) (temporary notations, revisions, and supplements) to its H. L. & W. Slope No. 2 (I.D. No. 36–07269) located in Schuylkill County, Pennsylvania. The petitioner proposes to revise and supplement mine maps on an annual basis instead of the required 6 month interval and to update maps daily by hand notations. The petitioner asserts that the proposed alternative method would provide at least the same measure of protection as would the mandatory standard.

8. Energy West Mining Company

[Docket No. M–94–107–C]

Energy West Mining Company, P.O. Box 310, Huntington, Utah 84528 has filed a petition to modify the application of 30 CFR 75.804(a) (underground high-voltage cables) to its Deer Creek Mine (I.D. No. 42–00121) located in Emery County, Utah. The petitioner requests a modification of the standard to allow the use of Anaconda Type SHD+GC, Piralli Type SHD-Center-GC, or Tiger Brand Type SHD-CGC MSHA-approved flame resistant cables with a flexible No. 16 A.W.G. ground check conductor for the ground continuity check circuit, on high-voltage longwall systems. The petitioner asserts that the proposed alternate method would provide at least same measure of protection as would the mandatory standard.

9. Sky High Coal Company

[Docket No. M–94–108–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.335 (construction of seals) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. The petitioner requests a modification of the standard to permit alternative methods of seal construction using wooden materials of moderate size and weight due to the difficulty in accessing previously driven headings and breasts containing inaccessible abandoned workings; to accept a design criterion in the 10 psi range; and to permit the water trap to be installed in the gangway seal and sampling tube in the monkey seal

for seals installed in pairs. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

10. Sky High Coal Company

[Docket No. M–94–109–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.360 (preshift examination) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. The petitioner proposes to examine each seal for physical damage from the slope gunboat during the preshift examination after an air quantity reading is taken in by the intake portal and to test for the quantity and quality of air at the intake air split locations off the slope in the gangway portion of the working section. The petitioner proposes to physically examine the entire length of the slope once a month. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

11. Sky High Coal Company

[Docket No. M–94–110–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.364(b) (1), (4), and (5) (weekly examination) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. Due to hazardous conditions and roof falls, certain areas of the intake haulage slope and primary escapeway cannot be traveled safely. The petitioner proposes to examine these areas from the gunboat/slope car with an alternative air quality evaluation at the section's intake level, and to travel and thoroughly examine these areas for hazardous conditions once a month. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

12. Sky High Coal Company

[Docket No. M–94–111–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1100–2(a)(2) (quantity and location of firefighting equipment) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. The petitioner proposes to use only portable fire extinguishers to replace existing requirements where rock dust, water cars, and other water storage are not practical. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

13. Sky High Coal Company

[Docket No. M–94–112–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1200 (d) & (i) (mine map) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. The petitioner proposes to use cross-sections instead of contour lines through the intake slope, at locations of rock tunnel connections between veins, and at 1,000 feet intervals of advance from the intake slope and to limit the mapping of mine workings above and below to those present within 100 feet of the vein being mined except when veins are interconnected to other veins beyond the 100 feet limit through rock tunnels. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

14. Sky High Coal Company

[Docket No. M–94–113–C]

Sky High Coal Company, R.D. #4, Box 393A, Pine Grove, Pennsylvania 17963 has filed a petition to modify the application of 30 CFR 75.1202–1(a) (temporary notations, revisions, and supplements) to its L. V. No. 3 Slope (I.D. No. 36–08405) located in Schuylkill County, Pennsylvania. The petitioner proposes to revise and supplement mine maps on an annual basis instead of the required 6 month interval and to update maps daily by hand notations. The petitioner asserts that the proposed alternative method would provide at least the same measure of protection as would the mandatory standard.

15. Consolidation Coal Company

[Docket No. M–94–114–C]

Consolidation Coal Company, 1800 Washington Road, Pittsburgh, Pennsylvania 15241–1421 has filed a petition to modify the application of 30 CFR 75.503 (permissible electric face equipment; maintenance) to its Dilworth Mine (I.D. No. 36–04281) located in Greene County, Pennsylvania. The petitioner proposes to use 800 feet trailing cables with three-phase 480 volt to supply power to loading machines, shuttle cars, roof bolters and section ventilation fans while developing longwall panels. The petitioner states that the cables would not be smaller than No. 4 A.W.G. for the ventilation fans, center bolters, and shuttle cars and not smaller than No. 2 A.W.G. for the loading machines; and that adequate training would be provided to all miners designated necessary by the operator. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

16. R & S Coal Company

[Docket No. M–94–115–C]

R & S Coal Company, 8 West Main Street, Goodspring, Pennsylvania 17981 has filed a petition to modify the application of 30 CFR 75.1400 (hoisting equipment; general) to its Primrose Slope (I.D. No. 36–08221) located in Schuylkill County, Pennsylvania. Because of the steep, frequently changing pitch and numerous curves and knuckles in the main haulage slope, the petitioner proposes to use the gunboat without safety catches in transporting persons. As an alternative, when using the gunboat to transport persons, the petitioner proposes to use an increased rope strength safety factor and secondary safety connections which are securely fastened around the gunboat and to the hoisting rope above the main connecting device. The petitioner asserts that the proposed alternate method would provide at least the same measure of protection as would the mandatory standard.

17. Genwal Coal Company

[Docket No. M–94–116–C]

Genwal Coal Company, P.O. Box 1420, Huntington, Utah 84528 has filed a petition to modify the application of 30 CFR 75.350 (air courses and belt haulage entries) to its Crandall Canyon Mine (I.D. No. 40–01715) located in Emery County, Utah. The petitioner proposes to use belt air to ventilate the face area and to install a low-level carbon monoxide detection system that would provide both visual and audible alarm signals as an early warning device in belt entries used as intake air courses, which would provide two separate and distinct intake air escapeways to the miners working in the development sections. The petitioner asserts that the proposed alternative method would provide at least the same measure of protection as would the mandatory standard.

Request for Comments

Persons interested in these petitions may furnish written comments. These comments must be filed with the Office of Standards, Regulations and Variances, Mine Safety and Health

Administration, Room 627, 4015 Wilson Boulevard, Arlington, Virginia 22203. All comments must be postmarked or received in that office on or before September 9, 1994. Copies of these petitions are available for inspection at that address.

Dated: August 1, 1994.

Patricia W. Silvey,

Director, Office of Standards, Regulations, and Variances.

[FR Doc. 94–19471 Filed 8–9–94; 8:45 am]

BILLING CODE 4510–43–P

NATIONAL SCIENCE FOUNDATION

Advisory Committee for Education and Human Resources; Meeting

In accordance with the Federal Advisory Committee Act (Pub. L. 92–463, as amended), the National Science Foundation announces the following meeting:

Name: Committee of Visitors for Research, Evaluation and Dissemination.

Date and Time: August 25, 1994, 9:00 a.m. to 5:00 p.m. August 26, 1994, 9:00 a.m. to 12 Noon.

Place: Room 310, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230.

Type of Meeting: Closed.

Contact Person: Dr. Daryl Chubin, Division Director, 4201 Wilson Boulevard, Room 855, Arlington, VA 22230. Telephone (703) 306–1650.

Purpose of Meeting: To carry out Committee of Visitors (COV) review, including examination of decisions on proposals, reviewer comments, and other privileged materials.

Agenda: To provide oversight review of the Evaluation Program.

Reason for Closing: The meeting is closed to the public because the Committee is reviewing proposal actions that will include privileged intellectual property and personal information that could harm individuals if they were disclosed. If discussions were open to the public, these matters that are exempt under 5 U.S.C. 552b(c) (4) and (6) of the Government in the Sunshine Act would be improperly disclosed.

Dated: August 5, 1994

M. Rebecca Winkler,

Committee Management Officer.

[FR Doc. 94–19502 Filed 8–9–94; 8:45 am]

BILLING CODE 7555–01–M

Special Emphasis Panel in Geosciences; Meeting

In accordance with the Federal Advisory Committee Act (Pub. L. 92–463), as amended), the National Science Foundation announces the following meeting.

Name: Special Emphasis Panel in Geosciences.

Date and Time: August 25–26, 1994 from 8:30am to 5:00pm.

Place: National Science Foundation, Division of Atmospheric Sciences, 4201 Wilson Blvd., Room 770 and 730, Arlington, VA 22230.

Type of Meeting: Closed.

Contact Person: Dr. Robert M. Robinson, Program Director for the Upper Atmospheric Facilities, Division of Atmospheric Sciences, Room 775, National Science Foundation, 4201 Wilson Blvd., Arlington, Virginia 22230. Telephone number is (703) 306–1531.

Purpose of Meeting: To provide a comprehensive review of the Coupling Energetics and Dynamics in Atmospheric Regions (CEDAR) proposals.

Agenda: To review and evaluate the Coupling Energetics and Dynamics in Atmospheric Regions (CEDAR) proposals.

Reason for Closing: The materials being reviewed include information of a proprietary or confidential nature, including technical information; financial data; and personal information concerning individuals associated with the proposals. These matters are exempt under 5 U.S.C. 552b(c), (4) and (6) of the Government Sunshine Act.

Dated: August 5, 1994.

M. Rebecca Winkler,

Committee Management Office.

[FR Doc. 94–19503 Filed 8–9–94; 8:45 am]

BILLING CODE 7555–01–M

NUCLEAR REGULATORY COMMISSION

Docket No. 50–213

Connecticut Yankee Atomic Power Co. (Haddam Neck Plant); Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. DPR–61, issued to Connecticut Yankee Atomic Power Company (CYAPCO, the licensee), for operation of the Haddam Neck Plant, located in Middlesex County, Connecticut.

Environmental Assessment

Identification of the Proposed Action

The proposed amendment will revise the Haddam Neck Technical Specifications (TS) to allow an increased limit for fuel enrichment. The change will allow the storage of fuel with an enrichment not to exceed a nominal 5.0 weight percent (w/o) U–235 in the Haddam Neck Plant new and spent fuel storage racks. The proposed action is in accordance with the licensee's amendment request dated January 6, 1994, as supplemented March 16, 1994.

The Need for the Proposed Action

The current new and spent fuel storage rack maximum nominal enrichment is 3.9 w/o U–235 for Zircaloy clad fuel and 4.0 w/o U–235 for stainless steel clad fuel. The licensee has changed fuel vendors and has ordered higher enriched fuel (5.0 w/o U–235) for the upcoming outage scheduled to start in January 1995. The TS change is necessary for the storage of the new and eventually used fuel in the new and spent fuel storage racks. The licensee is planning to go to a longer cycle, which requires the use of the higher enriched fuel.

Environmental Impacts of the Proposed Action

The Commission has completed its evaluation of the proposed revision to the TS. The staff has concluded that the analysis methods used are acceptable and capable of predicting the reactivity of the Haddam Neck Plant storage racks with a high degree of confidence. The licensee has analyzed the new fuel storage racks for three different configurations as required by the NRC and determined that the staff criteria are met. Storage of fuel assemblies with nominal enrichments greater than 4.60 w/o U–235 were evaluated by means of reactivity equivalencing. This concept is predicated on the reactivity decrease associated with the addition of integral fuel burnable absorbers (IFBA), which the staff has found acceptable in previous fuel storage applications. Fuel in the spent fuel racks was analyzed using alternating rows of fresh and burned (irradiated) fuel assemblies. For nominal storage cell design, uncertainties due to tolerances in fuel enrichment and density, fuel pellet dishing, storage cell I.D. and pitch, stainless steel thickness, and B4C panel width were accounted for as well as eccentric fuel positioning. To enable the storage of burned fuel assemblies initially enriched to greater than 3.2 w/o U–235, the concept of burnup credit reactivity equivalencing was used. This analysis is predicated upon the reactivity decrease associated with fuel depletion and has been previously accepted by the staff for spent fuel storage analysis. The maximum Keff of the alternating rows storage configuration was 0.9485 when combined with all known uncertainties and meets the staff criteria of Keff less than 0.95.

The TS change will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no

significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with this proposed TS amendment.

With regard to potential nonradiological impacts, the proposed amendment does involve features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed amendment.

The environmental impacts of transportation resulting from the use of more highly enriched fuel and extended burnup rates have been discussed in the generic staff assessment entitled "NRC Assessment of the Environmental Effects of Transportation Resulting from Extended Fuel Enrichment and Irradiation," dated July 7, 1988, and published in the Federal Register on August 11, 1988 (53 FR 30355) as corrected on August 24 1988 (53 FR 32322). As indicted therein, the environmental cost contribution of the proposed increase in fuel enrichment and irradiation limits are either unchanged or may in fact be reduced from those summarized in Table S–4 as set forth in 10 CFR 51.52(c).

Therefore, the staff concludes that there are no significant radiological or nonradiological environmental impacts associated with the proposed amendment.

Alternatives to the Proposed Action

Since the Commission has concluded there is no measurable environmental impact associated with the proposed amendment, any alternatives with equal or greater environmental impact need not be evaluated. The principal alternative to the amendment would be to deny the amendment request. Such action would not enhance the protection of the environment and would result in unjustified cost to the licensee.

Alternative Use of Resources

This action does not involve the use of resources not considered previously in the Final Environmental Statement for the Haddam Neck Plant.

Agencies and Persons Consulted

The NRC staff consulted with the Connecticut State official regarding the environmental impact of the proposed action. The State official had no comments.

Finding of No Significant Impact

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed amendment.

For further details with respect to this proposed action, see the licensee's letter dated January 6, 1994, as supplemented March 16, 1994, which are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC 20555, and at the local public document room located at the Russell Library, 123 Broad Street, Middletown, Connecticut 06547.

Dated at Rockville, Maryland, this 3rd day of August, 1994.

For the Nuclear Regulatory Commission.

Alexander W. Dromerick,

Acting Director, Project Directorate I–4, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 94–19493 Filed 8–9–94; 8:45 am]

BILLING CODE 7590–01–M

[Docket Nos. 50–280, 50–281, 50–338, and 50–339]

Virginia Electric and Power Co.; Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of its regulations to Facility Operating License Nos. DPR–32, DPR–37, NPF–4, and NPF–7 issued to Virginia Electric and Power Company, (the licensee), for operation of the Surry Power Station Units 1 and 2, located in Surry County, Virginia, and North Anna Power Station Units 1 and 2, located in Louisa County, Virginia.

Environmental Assessment

Identification of Proposed Action

The proposed action is in accordance with the licensee's application dated May 27, 1994, for exemption from certain requirements of 10 CFR 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage." The exemption would allow implementation of a hand geometry biometric system for site access control such that picture badges and access control cards for certain non-employees can be taken offsite.

The Need for the Proposed Action

Pursuant to 10 CFR 73.55, paragraph (a), the licensee shall establish and maintain an onsite physical protection system and security organization.

10 CFR 73.55(d), "Access Requirements," paragraph (1), specifies that "licensee shall control all points of personnel and vehicle access into a protected area." 10 CFR 73.55(d)(5) specifies that "A numbered picture badge identification system shall be used for all individuals who are authorized access to protected areas without escort." 10 CFR 73.55(d)(5) also states that an individual not employed by the licensee (i.e., contractors) may be authorized access to protected areas without escort provided the individual "receives a picture badge upon entrance into the protected area which must be returned upon exit from the protected area * * *".

Currently, employee and contractor identification badges, coupled with their associated access control cards, are issued and retrieved on the occasion of each entry to and exit from the protected areas of the Surry and North Anna sites. Station security personnel are required to maintain control of the badges while the individuals are offsite. This practice has been in effect at the Surry and North Anna Power Stations since each operating license was issued. Security personnel retain each identification badge, as well as the associated access control card, when not in use by the authorized individual, within appropriately designed storage receptacles inside a bullet-resistant enclosure. An individual who meets the access authorization requirements is issued an individual picture identification card and an individual access control card which allows entry into preauthorized areas of the station. While entering the plant in the present configuration, an authorized individual is "screened" by the required detection equipment and by the issuing security officer. Having received the badge, the individual proceeds to the access portal, inserts the access control card into the card readers, enters a personal identification number (PIN), and passes through the turnstile which unlocks if the preset criteria are met. Once inside the station, the individual's PIN is not required in order to further utilize the access authorization card.

This present procedure is labor intensive since security personnel are required to verify badge issuance, ensure badge retrieval, and maintain the badges in orderly storage until the next entry into the protected area. The regulations permit employees to remove

their badges from the site, but an exemption from 10 CFR 73.55(d)(5) is required to permit contractors to take their badges offsite instead of returning them when exiting the site.

Environmental Impacts of the Proposed Action

The Commission has completed its evaluation of the licensee's application. Under the proposed system, all individuals authorized to gain unescorted access will have the physical characteristics of their hand (hand geometry) recorded with their badge number. Since the hand geometry is unique to each individual and its application in the entry screening function would preclude unauthorized use of a badge, the requested exemption would allow employees and contractors to keep their badges at the time of exiting the protected area. The process of verifying badge issuance, ensuring badge retrieval, and maintaining badges could be eliminated while the balance of the access procedure would remain intact. Firearm, explosive, and metal detection equipment and provisions for conducting searches will remain as well. The security officer responsible for the last access control function (controlling admission to the protected area) will also remain isolated within a bullet-resistant structure in order to assure his or her ability to respond or to summon assistance.

Use of a hand geometry biometrics system exceeds the present verification methodology's capability to discern an individual's identity. Unlike the photograph identification badge, hand geometry is nontransferable. During the initial access authorization or registration process, hand measurements are recorded and the template is stored for subsequent use in the identity verification process required for entry into the protected area. Authorized individuals insert their access authorization card into the card reader and the biometrics system records an image of the hand geometry. The unique features of the newly recorded image are then compared to the template previously stored in the database. Access is ultimately granted based on the degree to which the characteristics of the image match those of the "signature" template.

Since both the badge and hand geometry would be necessary for access into the protected area, the proposed system would provide for a positive verification process. Potential loss of a badge by an individual, as a result of taking the badge offsite, would not enable an unauthorized entry into protected areas.

The access process will continue to be under the observation of security personnel. The system of identification badges coupled with their associated access control cards will continue to be used for all individuals who are authorized access to protected areas without escorts. Badges will continue to be displayed by all individuals while inside the protected area. Addition of a hand geometry biometrics system will provide a significant contribution to effective implementation of the security plan at each site.

Accordingly, the Commission concludes that this proposed action would result in no significant radiological environmental impact. With regard to potential non-radiological impacts, the proposed change does not affect non-radiological plant effluents and has no other environmental impact. Therefore, the Commission concludes that there are no significant non-radiological environmental impacts associated with the proposed action.

Alternative to the Proposed Action

As an alternative to the proposed action, the staff considered denial of the proposed action. Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources

This action did not involve the use of any resources not previously considered in the Final Environmental Statements related to operation of Surry Units 1 and 2, and North Anna Units 1 and 2.

Agencies and Persons Consulted

The NRC staff consulted with the State of Virginia regarding the environmental impact of the proposed action.

Finding of No Significant Impact

The Commission has determined not to prepare an environmental impact statement for the proposed exemption. Based upon the foregoing environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the request for exemption dated May 27, 1994, which is available for public inspection at the Commission's Public Document Room, 2120 L Street NW., Washington, DC, and at the local public document rooms located at the Swem Library, College of William and Mary, Williamsburg, Virginia 23185, and the Alderman Library, Special Collections Department, University of Virginia, Charlottesville, Virginia 22903–2498.

Dated at Rockville, Maryland, this 3rd day of August 1994.

For the Nuclear Regulatory Commission.

Victor M. McCree,

Acting Director, Project Directorate II–2, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulations.

[FR Doc. 94–19494 Filed 8–9–94; 8:45 am]

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[Docket Nos. 50–346 and 50–440]

Centerior Energy, et al.; License Amendment Requests Proposed Merger of Toledo Edison Co. and Cleveland Electric Illuminating Co.; Antitrust Determination

Pursuant to two separate license amendment requests from licensee Centerior Energy (Centerior) dated June 2, 1994 and June 6, 1994, the staff hereby notices the request by Centerior to amend the Perry Nuclear Power Plant (Perry) and Davis-Besse Nuclear Power Station (Davis-Besse) operating licenses to reflect a new owner-operator of Perry and Davis-Besse. The new owner-operator, temporarily named ("NEWCO" by Centerior, will result from the proposed merger between the Toledo Edison Company (TE) and the Cleveland Electric Illuminating Company (CEI)—both existing licensees and owners of the Perry and Davis-Besse facilities.

The staff has interpreted the Atomic Energy Act of 1954, as amended, and the Commission's regulations, to require an antitrust review of an owner or operator prior to the proposed new owner taking possession of the facility or prior to the proposed new operator assuming responsibility for operating the facility in question. Where the new operator is a non-owner, the staff has developed, with the Commission's approval, an antitrust license condition that prohibits the new operator from marketing or brokering power or energy from the facility. (This type of license condition would not apply in the instant case because NEWCO will be both an owner and an operator of Perry and Davis-Besse.) The intent of the staff in developing the non-owner operator license condition is to forgo the need for an extended review of the operator's competitive practices and any accompanying analysis of how any practices impact or could impact the electric bulk power services market. By agreeing not to be involved in the facility's marketing or brokering of bulk

power services, the staff believes the new non-owner operator will not possess enough market power to significantly impact the market.

The instant amendment requests involve two licensees, TE and CEI, that have undergone antitrust reviews by the staff at the construction permit and operating license stages of the licensing process. The construction permit antitrust review in the combined Perry/Davis-Besse proceeding resulted in extensive antitrust license conditions obligating TE and CEI to cease certain anticompetitive practices and make available certain bulk power services to power entities in the affected bulk power services market. This review analyzed the practices of the power pooling group known as CAPCO, i.e., Central Area Power Coordination Group, as a whole and also the practices of the five individual utility operating companies, including TE and CEI, that made up CAPCO. The staff believes the construction permit antitrust review and the operating license review, which found no significant antitrust changes since the previous review, adequately defined the problems associated with TE's and CEI's competitive practices and addressed these problems during the review process.

The license conditions that evolved from the Commission's antitrust review process are extensive and procompetitive. The licensee has agreed that the new owner-operator will be bound by the existing antitrust license conditions now binding TE and CEI—by doing so, the staff believes that there is no need to conduct another antitrust review as a result of the proposed merger nor is there any need to seek public comment on the proposed merger.

For further details with respect to this action, see the applications for amendment dated June 2, 1994 (Perry) and June 6, 1994 (Davis-Besse), which are available for public inspection at the Commission's Public Document Room, located at the Gelman Building, 2120 L Street NW., Washington, DC 20555 and at the local Public Document Rooms: for Perry, at the Perry Public Library, 3753 Main Street, Perry, Ohio 44081; for Davis-Besse, at the University of Toledo Library, Documents Department, 2801 Bancroft Avenue, Toledo, Ohio 43606.

Dated At Rockville, Maryland, this 2nd day of August, 1994.

For the Nuclear Regulatory Commission.

Anthony T. Gody,

Chief, Inspection and Regulatory Criteria Branch, Program Management, Policy Development and Analysis Staff, Office of Nuclear Reactor Regulation.

[FR Doc. 94–19495 Filed 8–9–94; 8:45 am]

BILLING CODE 7590–01–M

[Docket No. 030–15075, License No. 20–05520–05 (Expired), EA 94–124]

Raymond Tarr, et al.; Order To Cease and Desist Use and Possession of Regulated Byproduct Material and Decommission Facility and Demand for Information

In the matter of Mr. Raymond Tarr, Mr. Milton R. Hamilton, Omniwave Electronics Corporation, RCM Corporation, Cherokee Electronics Corporation, Gloucester, Massachusetts

I

Mr. Raymond Tarr was President and Mr. Milton R. Hamilton was an authorized user and the Executive Vice-President of Omni-Wave Electronics Corporation (Licensee), the holder of expired Byproduct Materials License No. 20–05520–05 (License) issued by the Nuclear Regulatory Commission (NRC or Commission) pursuant to 10 CFR Part 30 on November 15, 1985. The License authorized the possession and use of cobalt-60 in any form, up to 10 millicuries, and krypton-85 in any form, up to 500 millicuries, in accordance with the conditions specified therein. The License expired on April 30, 1990.

II

Since the expiration of the License, the byproduct material has remained at 22 Blackburn Drive, Gloucester, Massachusetts, 01930, in a building co-owned by Messrs. Tarr and Hamilton. It was represented to the NRC during a telephone conversation on August 20, 1992, between Mr. Milton Hamilton, Licensee, and Mr. Charles Amato, NRC, that there has been two successors of Omni-Wave Electronics, RCM Corporation and Cherokee Electronics Corporation. The Licensee did not submit an application for renewal of the License pursuant to 10 CFR 30.37 prior to its expiration, nor did the Licensee notify the Commission, in writing, pursuant to 10 CFR 30.36, of a decision not to renew the License. On January 27, 1992, the NRC, Region I, issued a Notice of Violation (NOV) to the RCM Corporation, ATTN: Mr. Milton Hamilton, as successor to the Licensee, for failure to request renewal, or to file a notice of non-renewal or transfer of the byproduct material, prior to expiration of the License. The letter forwarding the NOV directed RCM Corporation to place the radioactive material in its possession in secure storage until such time as it acquired an NRC license, and stated that no other use of that material or purchase of additional material was authorized. RCM Corporation applied for a possession license on March 19, 1992. However, in a telephone conversation with Mr. Charles G. Amato, Health Physicist, NRC, Region I, on July 29, 1992, Mr. Hamilton stated that RCM Corporation was undergoing reorganization and requested that the application be withdrawn. In a letter dated August 3, 1992, the RCM Corporation withdrew its application for a possession license. As of this date, you Omni-Wave, RCM Corporation or Cherokee Electronics Corporation have not applied for, nor obtained, an NRC license.

On August 11, 1993, the NRC, Region I, issued a Confirmatory Action Letter No. 1–93–004 (CAL) to Mr. Milton Hamilton of the Omni-Wave Electronics Corporation confirming the Licensee's commitment to develop and submit a decommissioning plan to the NRC Region I office by September 15, 1993, and that the decommissioning work be completed by November 15, 1993. The CAL also stated that Omni-Wave Electronics committed to prepare and transmit to the NRC by November 15, 1993, a report showing the disposition of radioactive material with copies of all shipping papers. On September 9, 1993, Mr. Hamilton requested an extension to the date stated in the CAL, in order to raise funds for the completion of the decommissioning. He stated that due to a very tight budget and the approximate cost for decommissioning, it was anticipated that the decommissioning would be accomplished within 30–45 days. As of this date, a report has not been transmitted to NRC describing the decommissioning of the facility, nor have copies of shipping papers been submitted to the NRC showing the disposition of radioactive material.

On June 15, 1994, the NRC conducted a special confirmatory safety inspection at 22 Blackburn Drive, Gloucester, Massachusetts. The inspection was performed to identify licensed material still in possession under an expired license and to assure that the material was in safe storage. The inspection included the pump room area of the facility, the manufacturing area, and the storage area used for licensed material. The NRC inspector identified cobalt-60 and krypton-85 byproduct material, cobalt-60 contamination, and cobalt-60 waste, at the facility located at 22

Blackburn Drive, Gloucester, Massachusetts.

III

Messrs. Tarr and Hamilton, as co-owners of the building at 22 Blackburn Drive, Gloucester, Massachusetts, remain in possession of non-exempt radioactive material without a license. This is prohibited by Section 81 of the Atomic Energy Act (AEA) of 1954, as amended, and by 10 CFR 30.3, which state that, (except for persons exempt as provided in 10 CFR Parts 30 and 150), no person shall possess or use byproduct material except as authorized in a specific or general NRC license. Messrs. Tarr and Hamilton continue to possess the radioactive material contrary to Section 81 of the AEA and 10 CFR 30.3, without an NRC license.

Improper handling of the byproduct material can result in unnecessary exposure to radiation. The Atomic Energy Act and the Commission's regulations require that the possession of licensed material be under a regulated system of licensing and inspection. Given the circumstances surrounding Messrs. Tarr's and Hamilton's possession of the byproduct material and failure of Mr. Hamilton, whether acting on the behalf of the Licensee or RCM Corporation, as successor to the Licensee, or as an individual, to respond adequately to the NOV and CAL, I lack the requisite reasonable assurance that the health and safety of the public will be protected while Messrs. Tarr and Hamilton remain in possession of the radioactive material without the required NRC license.

IV

Accordingly, in accordance with Sections 81 and 161b, i, and o of the Atomic Energy Act of 1954, as amended, and 10 CFR Parts 20 and 30 the Commission's regulations, Messrs. Tarr and Hamilton must:

A. Cease and desist from any further use of byproduct material now in their possession.

B. Continue to maintain safe control over the byproduct material, by keeping the material in locked storage and no allowing any person access to the material, except for purposes of assuring the material's continued safe storage, until the material is transferred to a person authorized to receive and possess the material in accordance with the provisions of this Order and the Commission's regulations.

C. Transfer the cobalt-60 and the krypton-85 byproduct material and all associated radioactively contaminated waste located at 22 Blackburn Drive, Gloucester, Massachusetts within 30 days to a person authorized to receive and possess the material.

D. Decommission the facility within 60 days of the date of this Order and DFI and provide: (1) a notification of when decommissioning has been completed, and (2) a report providing the information required by 10 CFR 30.36 (c)(1)(v)(A) and (c)(1)(v)(B), appending to it the original and one copy of NRC Form–314, "Disposition of Radioactive Material," with copies of all shipping papers. This 60 day period does not excuse the continuing violation of the requirements in 10 CFR 30.36 to remove radioactive contamination, properly dispose of byproduct material, submit a completed form NRC–314, and conduct a radiation survey of the premises.

V

In addition to issuance of this Order, the Commission requires further information from Messrs. Tarr and Hamilton in order to determine whether the Commission can have reasonable assurance that in the future, should Messrs. Tarr or Hamilton perform licensed activities under any other NRC license, Messrs. Tarr and Hamilton will conduct any activities in accordance with NRC requirements, and to determine whether enforcement action is warranted against Messrs. Tarr or Hamilton, as individuals.

Accordingly, pursuant to sections 161c, 161o, and 182 of the Atomic Energy Act of 1954, as amended, and the Commissions's regulations in 10 CFR 2.204, Messrs. Tarr and Hamilton are hereby required to submit, either jointly or separately, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555, within the timeframe specified below, a statement in writing, under oath or affirmation, on the following information:

1. Within 10 days of the date of this Order and DFI, inform the NRC, by letter, how each intends to comply with NRC requirements; in particular, how you intend to maintain safe control over the byproduct material prior to the transfer of the material to an authorized recipient.

2. Within 15 days of the date of this Order and DFI, Messrs. Tarr and Hamilton shall provide a decommissioning plan for NRC review and approval, which will meet the applicable requirements of 10 CFR 30.36.

3. Within seven days following transfer of the radioactive material, Messrs. Tarr and Hamilton shall provide: (1) confirmation that the cobalt-60 and the krypton-85 have been transferred; and (2) a copy of the certification from the authorized recipient that the byproduct material has been received.

4. At least two working days prior to the date of the transfer of the byproduct material, Mr. Tarr or Mr. Hamilton shall notify Dr. Ronald Bellamy, Chief, Nuclear Materials Safety Branch, NRC, Region I, by telephone (610–337–5200) so that the NRC may, if it elects, observe the transfer of the material to the authorized recipient.

5. Within 30 days of the date of this Order and DFI, if Messrs. Tarr and Mr. Hamilton believe they do not have sufficient funds to complete the transfer and decommissioning, they must provide specific evidence supporting such a claim by submitting: (1) an estimate of the cost of the transfer and decommissioning, and the basis for the estimate, including the license number and identity of the person who would perform the transfer and decommissioning; (2) written statements from at least two banks stating that Messrs. Tarr and Hamilton could not qualify for a loan to pay for the transfer of the byproduct materials and decommissioning of the facility; (3) copies of Federal income tax returns for the years ending 1993, 1992, 1991, and 1990, for both Messrs. Tarr and Hamilton; (4) copies of all Bankruptcy Court submittals for the Licensee, RCM Corporation and Cherokee Electronics Corporation; copies of all Bankruptcy Court decisions related to the above corporations; and copies of all correspondence between these corporations and the NRC related to the bankruptcy proceedings; and (5) a signed agreement to allow the NRC to receive Messrs. Tarr and Hamilton's credit information from a credit agency. A SUBMITTAL OF EVIDENCE SUPPORTING THE LACK OF SUFFICIENT FUNDS DOES NOT EXCUSE NONCOMPLIANCE WITH THIS ORDER.

6. Within 30 days of the date of this Order and DFI provide:

a. A list of all NRC licensees for whom Messrs. Tarr and Hamilton perform licensed activities, or with whom they are associated in any other capacity;

b. A statement as to why the NRC should have confidence that Messrs. Tarr and Hamilton would comply with NRC requirements in the event that they perform licensed activities under another NRC license.

c. A statement as to why, in light of the facts set forth above, the NRC should not issue an Order to both Messrs. Tarr and Hamilton, as individuals, prohibiting them from engaging in NRC-licensed activities.

This information is needed to light of the continued violations of Commission requirements. Copies of the response to this Demand for Information also shall be sent to the Regional Administrator, Region I, 475 Allendale Road, King of Prussia, Pennsylvania 19406, and to the Assistant General Counsel for Hearings and Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

After reviewing your response, the NRC will determine whether further action is necessary to ensure compliance with NRC requirements.

Dated at Rockville, Maryland, this 2nd day of August 1994.

For the Nuclear Regulatory Commission.

Hugh L. Thompson, Jr.,

Deputy Executive Director for Nuclear Materials Safety, Safeguards, and Operations Support.

[FR Doc. 94–19496 Filed 8–9–94; 8:45 am]

BILLING CODE 7590–01–M

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34–34487; File No. SR–NASD–94–32]

Self-Regulatory Organizations; Notice of Proposed Rule Change by National Association of Securities Dealers, Inc. Amending the Prompt Receipt and Delivery of Securities Interpretation Relating to Short Sales

August 4, 1994.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"), 15 U.S.C. 78s(b)(1), notice is hereby given that on July 28, 1994, the National Association of Securities Dealers, Inc. ("NASD" or "Association") filed with the Securities and Exchange Commission ("Commission" or "SEC") the proposed rule change as described in Items I, II, and III below, which Items have been prepared by the NASD.[1] The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The NASD is proposing to amend the Prompt Receipt and Delivery of Securities Interpretation ("Interpretation") issued by the NASD Board of Governors under Article III, Section 1 of the NASD Rules of Fair Practice. Specifically, the NASD proposes to amend the Interpretation to require members to annotate their affirmative determinations as to stock availability that are required to be made when effecting short sales. The following is the complete text of the proposed rule change. (Additions are italicized and deletions are bracketed.)

••• Interpretation of the Board of Governors

Prompt Receipt and Delivery of Securities

It shall be deemed a violation of Article III, Section 1 of the Rules of Fair Practice of the Association for a member *or person associated with a member* to violate the provisions of the following interpretation thereof:

(a) Purchases: No member *or person associated with a member* may accept a customer's purchase order for any security unless it has first ascertained that the customer placing the order of its agent agrees to receive securities against payment in an amount equal to any execution, even though such an execution may represent the purchase of only a part of a larger order.

(b) Sales:

(1) Long Sales

No member or person associated with a member shall accept a long sale order from any customer in any security unless:

(A) The member has possession of the security;

(B) The customer is long in his account with the member;

(C) The member *or person associated with a member* makes an affirmative determination that the customer owns the security and will deliver it in good deliverable form within five (5) business days of the execution of the order; or

(D) The security is on deposit in good deliverable form with a member of the Association, a member of a national securities exchange, a broker-dealer registered with the Securities and Exchange Commission, or any organization subject to state or federal banking regulations and that instructions have been forwarded to that depository to deliver the securities against payment.

(2) Short Sales

(*A*) *Customer short sales.* No member or person associated with a member shall accept a "short" sale order for any customer in any security unless the member *or person associated with a member* makes an affirmative determination that *the member* [it] will receive delivery of the security from the customer or that *the member* [it] can borrow the security on behalf of the customer for delivery by settlement date. This requirement shall not apply, however, to transactions in corporate debt securities.

(*B*) *Proprietary short sales.* No member *or person associated with a member* shall effect a "short" sale for its own account in any security unless the member *or person associated with a member* makes an affirmative determination that *the member* [it] can borrow the securities or otherwise provide for delivery of the securities by settlement date. This requirement will not apply to transactions in corporate debt securities, to bona fide market making transactions by a member in securities in which it is registered as a *Nasdaq* market maker, to bona fide market maker transactions in non-*Nasdaq* securities in which the market maker publishes a two-sided quotation to an independent quotation medium, or to transactions which result in fully hedged or arbitraged positions.

(3) Public Offering

In the case of a public offering of securities, paragraph 1 hereof shall not apply during the period from the commencement of the public offering until seven (7) business days following the date of settlement between the underwriter and the issuer of the securities; provided, however, that the member or person associated with a member believes in good faith that the customer has purchased the securities.

(4) "Affirmative Determination"

(*A*) To satisfy the requirements for an "affirmative determination" contained in subsection (b)(1)(C) above *for long sales,* the member or person associated with a member must make a notation on the order ticket at the time [he takes] the order *is taken* which reflects [his] *the* conversation with the customer as to the present location of the securities in question, whether they are in good deliverable form and [his] *the customer's* ability to deliver them to the member within five (5) business days.

(B) To satisfy the requirement for an "affirmative determination" contained in subsection (b)(2) above for customer and proprietary short sales, the member or person associated with a member must keep a written record which includes:

(i) if a customer assures delivery, the present location of the securities in question, whether they are in good deliverable form and the customer's ability to deliver them to the member within five (5) business days; or

(ii) if the member of person associated with a member locates the stock, the identity of the individual and firm contacted who offered assurance that the shares would be delivered or that were available for borrowing by settlement date and the number of shares needed to cover the short sale.

(C) The manner by which a member or person associated with a member annotates compliance with the "affirmative determination" requirement contained in subsection (b)(2) above (e.g., marking the order ticket, recording inquiries in a log, etc.) is not specified by this Interpretation and, therefore, shall be decided by each member. However, an affirmative determination and annotation of that affirmative determination must be made for each and every transaction since a "blanket" or standing assurance that securities are available for borrowing is not acceptable to satisfy the affirmative determination requirement.

(5) No change.

[1] The NASD amended the proposed rule change subsequent to the original filing on May 26, 1994. Amendment No. 1 was filed in order to clarify that the proposal applies to both NASD members and persons associated with NASD members.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the NASD included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The NASD has prepared summaries, set forth in sections (A), (B), and (C) below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

The NASD is proposing an amendment to the Interpretation dealing with affirmative determinations made by members, or those persons associated with such members, in connection with short sales. The proposed amendment to the Interpretation establishes a requirement for a member to annotate the affirmative determination made before effecting a short sale. The affirmative determination requirement already appears in the Interpretation and requires members or associated persons to assure that securities are available to cover the short position. The Interpretation currently requires the executing member or an associated person, in connection with any sale, to make an affirmative determination that delivery will be received from the customer or that the securities will be able to be borrowed by settlement date. For long sales, the affirmative determination is required to be noted on the order ticket at the time the order is placed. However, the rule does not require that such determination be evidenced in any specific manner for short sales.

The new rule would require members or associated persons to annotate, on the trade ticket or on some other record maintained for that purpose by the member firm, the following information:

1. If a customer assures delivery, the member or associated person must annotate that conversation noting the present location of the securities; whether the securities are in good deliverable form; and whether they will be delivered to the firm within time for settlement; or

2. If the member or associated person locates the stock, an annotation must be made that identifies the individual and firm contacted who offered assurance that the shares would be delivered or were available for borrowing by settlement date; and the number of shares needed to cover the short sale.

The manner by which a member or person associated with a member annotates compliance with the "affirmative determination" requirement contained in subsection (b)(2) above (e.g., marking the order ticket, recording inquiries in a log, etc.) is not specified by this Interpretation and, therefore, shall be decided by each member. However, an affirmative determination and annotation of that affirmative determination must be made for each and every transaction since a "blanket" or standing assurance that securities are available for borrowing is not acceptable to satisfy the affirmative determination requirement.[2]

The NASD believes that requiring such annotations will enhance member compliance with affirmative determination requirements already imposed by the Interpretation and will enable the NASD to examine member compliance with the requirements more effectively. Requiring firms to annotate each and every affirmative determination also will make clear the NASD's longstanding policy that firms cannot rely on daily facsimile sheets of "borrowable stocks" to satisfy their affirmative determination requirements under the Interpretation. The annotation requirement will preclude this practice as members or their associated persons will have to annotate the name of the person contacted and number of shares for each short sale.

Requiring annotation of affirmative determinations will also enhance the NASD's ability to examine for compliance with various other NASD short sale rules including those found in Article III, Section 21 of the Rules of Fair Practice (record keeping) and in the Uniform Practice Code, Section 71 (mandatory delivery requirements for certain restricted securities). Further, the annotation requirement will assist in examining for compliance with the short sale rule or "bid test," recently approved by the SEC.[3] Accordingly, the NASD is proposing to amend the Interpretation to require that members or their associated persons maintain a written record evidencing their compliance with the affirmative determination requirement for each customer or proprietary short sale.

[2] Pursuant to Rule 440C, The New York Stock Exchange ("NYSE") also requires NYSE members to make affirmative determinations prior to effecting short sales and to annotate such determinations. NYSE Information Memo 91–41 (October 18, 1991).

[3] Securities Exchange Act Rel. No. 34277 (June 29, 1994).

The NASD believes the proposed rule change is consistent with Section 15A(b)(6) of the Act. Section 15A(b)(6) requires that the rules of a national securities association be designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, processing information with respect to, and facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and in general to protect investors and the public interest. The proposal will enable the NASD to more effectively enforce an already existing provision of the Prompt Receipt and Delivery Interpretation requiring members or their associated persons to affirmatively determine that shares relating to a short sale are available for delivery to a purchaser.

B. Self-Regulatory Organization's Statement on Burden on Competition

The NASD believes that the proposed rule change will not result in any burden on competition that is not necessary or appropriate in furtherance of purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

Comments were neither solicited nor received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 35 days of the date of publication of this notice in the **Federal Register** or within such longer period (i) as the Commission may designate up to 90 days of such date if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the NASD consents, the Commission will:

A. By order approve such proposed rule change, or

B. Institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing. Persons making written submissions should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street NW., Washington, DC 20549. Copies of the submission, all subsequent

amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing will also be available for inspection and copying at the principal office of the NASD. All submissions should refer to file number SR-NASD-94-32 and should be submitted by August 31, 1994.

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[4]

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94-19523 Filed 8-9-94; 8:45 am]

BILLING CODE 8010-01-M

[Release No. 34-34486; File No. SR-NASD-93-61

Self-Regulatory Organizations; National Association of Securities Dealers, Inc.; Notice of Withdrawal of Proposed Rule Change and Termination of Proceeding To Determine Whether To Disapprove Proposed Rule Change Relating to the National Association of Securities Dealers, Inc.'s SelectNet Service

August 4, 1994.

On November 1, 1993, the National Association of Securities Dealers, Inc. ("NASD") filed with the Securities and Exchange Commission ("Commission" or "SEC"), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act") and Rule 19b-4 thereunder, a proposed rule change to modify the operational features of the SelectNet service.[1] On May 3, 1994, the Commission issued an order instituting proceedings to determine whether to disapprove the NASD's proposed rule change.[2]

By a letter dated July 25, 1994, the NASD advised the Commission of its decision to withdraw its SelectNet filing, SR-NASD-93-63.[3] The Commission has considered the letter from the NASD as a request for the Commission to terminate the proceeding to determine whether to disapprove the proposed rule change. Accordingly, based on the NASD's decision to withdraw its proposal SR-NASD-93-61, the proceeding to determine whether to disapprove is hereby terminated.

By the Commission.

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94-19445 Filed 8-9-94; 8:45 am]

BILLING CODE 8010-01-M

[Release No. 34-34485; File No. SR-NASD-94-15]

Self-Regulatory Organizations; Notice of Filing of Proposed Rule Change by National Association of Securities Dealers, Inc. Relating to the NASD's Free-Riding and Withholding Interpretation

August 3, 1994.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"), 15 U.S.C. 78s(b)(1), notice is hereby given that on March 18, 1994, the National Association of Securities Dealers, Inc. ("NASD" or "Association") filed with the Securities and Exchange Commission ("SEC" or "Commission") the proposed rule change as described in Items I, II, and III below, which Items have been prepared by the NASD. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The NASD is proposing to amend its Free-Riding and Withholding Interpretation, an Interpretation of the NASD's Board of Governors under Article III, Section 1 of the Association's Rules of Fair Practice.[1] Below is the text of the proposed rule change. Proposed new language is in italics; proposed deletions are in brackets.

"Free-Riding and Withholding" Introduction

The following Interpretation of Article III, Section 1 of the Association's Rules of Fair Practice is adopted by the Board of Governors of the Association pursuant to the provisions of Article VII, Section 3(a) of the Association's By-Laws and Article I, Section 3 of the Rules of Fair Practice.

This Interpretation is based upon the premise that members have an obligation to make a bona fide public distribution at the public offering price of securities of a public offering which trade at a premium in the secondary market whenever such secondary market begins (a "hot issue") regardless of whether such securities are acquired by the member as an underwriter, as a selling group member, or from a member participating in the distribution as an underwriter or a selling group or otherwise. The failure to make a bona fide public distribution when there is a demand for an issue can be a factor in artificially raising the price. Thus, the failure to do so, especially when the member may have information relating to the demand for the securities or other factors not generally known to the public, is inconsistent with high standards of commercial honor and just and equitable principles of trade and leads to an impairment of public confidence in the fairness of the investment banking and securities business. Such conduct is, therefore, in violation of Article III, Section 1 of the Association's Rules of Fair Practice and this Interpretation thereof which establishes guidelines in respect to such activity.

As in the case of any other Interpretation issued by the Board of Governors of the Association, the implementation thereof is a function of the District Business Conduct Committees and the Board of Governors. Thus, the Interpretation will be applied to a given factual situation by individuals active in the investment banking and securities business who are serving on these committees or on the Board. They will construe this Interpretation to effectuate its overall purpose to assure a public distribution of securities for which there is a public demand.

The Board of Governors has determined that a member who makes an allocation to a restricted person or account of an offering that trades at a premium in the secondary market shall not be considered to have violated this Interpretation if it cancels the allocations for such restricted person or account, prior to the end of the first

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[4] 17 CFR 200.30-3(a)(12).

[1] Securities Exchange Act Release No. 33141 (Nov. 3, 1993), 58 FR 59504 (Nov. 9, 1993). The NASD originally filed the proposed rule change on October 25, 1993, pursuant to Section 19(b)(3)(A) of the Act. On October 29, 1993, the Commission issued an Order of Summary Abrogation abrogating the NASD's October 25th rule change. The Commission's Order of Summary Abrogation suggested that the procedures provided by Section 19(b)(2) of the Act provide a more appropriate mechanism for determining whether the NASD's rule change is consistent with the Act. Thus, on November 1, 1993, the NASD refiled its rule change pursuant to Section 19(b)(2).

[2] Securities Exchange Act Release No. 34000 (May 3, 1994); 59 FR 23909 (May 9, 1994).

[3] Letter from Robert E. Aber, Vice President and General Counsel, The Nasdaq Stock Market, Inc., to Michael Ryan, SEC (July 25, 1994).

[1] NASD *Manual*, Rules of Fair Practice, Art. III, Sec. 1 (CCH) ¶ 2151.06.

business day following the date on which secondary market trading commences and reallocates such security at the public offering price to an non-restricted person or account.

Interpretation

Except as provided herein, it shall be inconsistent with high standards of commercial honor and just and equitable principles of trade and a violation of Article III, Section 1 of the Association's Rules of Fair Practice for a member, or a person associated with a member, to fail to make a bona fide public distribution at the public offering price of securities of a public offering which trade at a premium in the secondary market whenever such secondary market begins regardless of whether such securities are acquired by the member as an underwriter, a selling group member or from a member participating in the distribution as an underwriter or selling group member, or otherwise. Therefore, it shall be a violation of Article III, Section 1 for a member, or a person associated with a member, to:

1. Continue to hold any of the securities so acquired in any of the member's accounts;

2. Sell any of the securities to any officer, director, general partner, employee or agent of the member or of any other broker/dealer, or to a person associated with the member or with any other broker/dealer, or to a member of the immediate family of any such person; *provided however, that:*

(a) This prohibition shall not apply to a person in a limited registration category as that term is defined below; and

(b) The prohibition shall not apply to sales to a member of the immediate family of a person associated with a member whose is not supported directly or indirectly to a material extent by such person if the sale is by a broker/dealer other than that employing the restricted person and the restricted person has no ability to control the allocation of the hot issue.

3. Sell any of the securities to a person who is a finder in respect to the public offering or to any person acting in a fiduciary capacity to the managing underwriter, including, among others, attorneys, accountants and financial consultants, or to [a member of the immediate family of any such person;] *any other person who is supported directly or indirectly, to a material extent, by any person specified in this paragraph.*

4. Sell any securities to any senior officer of a bank, savings and loan institution, insurance company, [registered] investment company, [registered] investment advisory firm or any other institutional type account *(including, but not limited to, hedge funds, investment partnerships, investment corporations, or investment clubs),* domestic or foreign, or to any person in the securities department of, or to any employee or any other person who may influence or whose activities directly or indirectly involve or are related to the function of buying or selling securities for any bank, savings and loan institution, insurance company, [registered] investment company, [registered] investment advisory firm, or other institutional type account, domestic or foreign, or to [a member of the immediate family of any such person;] *any other person who is supported directly or indirectly, to a material extent, by any person specified in this paragraph.*

5. Sell any securities to any account in which any person specified under paragraphs (1), (2), (3) or (4) hereof has a beneficial interest;

Provided, however, a member may sell part of its securities acquired as described above to:

(a) persons enumerated in paragraphs (3) or (4) hereof; and

(b) members of the immediate family of persons enumerated in paragraph (2) hereof provided that such person enumerated in paragraph (2) does not contribute directly or indirectly to the support of such member of the immediate family; and

(c) any account in which any person specified under paragraph (3) or (4) or subparagraph (b) of this paragraph has a beneficial interest;

if the member is prepared to demonstrate that the securities were sold to such persons in accordance with their normal investment practice [with the member], that the aggregate of the securities so sold is insubstantial and not disproportionate in amount as compared to sales to members of the public and that the amount sold to any one of such persons is insubstantial in amount.

6. Sell any of the securities, at or above the public offering price, to any other broker/dealer; provided, however, a member may sell all or part of the securities acquired as described above to another member broker/dealer upon receipt from the latter in writing assurance that such purchase would be made to fill orders for bona fide public customers, other than those enumerated in paragraphs (1), (2), (3), (4) or (5) above, at the public offering price as an accommodation to them and without compensation for such.

7. Sell any of the securities to any domestic bank, domestic branch of a foreign bank, trust company or other conduit for an undisclosed principal unless:

(a) An affirmative inquiry is made of such bank, trust company or other conduit as to whether the ultimate purchasers would be persons enumerated in paragraphs (1) through (5) hereof and satisfactory assurance is received that the ultimate purchasers would not be such persons; and that the securities would not be sold in a manner inconsistent with the provisions of paragraph (6) hereof; otherwise, there shall be a rebuttable presumption that the ultimate purchasers were persons enumerated in paragraphs (1) through (5) hereof or that the securities were sold in a manner inconsistent with the provisions of paragraph (6) hereof;

(b) A recording is made on the order ticket, or its equivalent, or on some other supporting document, of the name of the person to whom the inquiry was made at the bank, trust company or other conduit as well as the substance of what was said by that person and what was done as a result thereof;

(c) The order ticket, or its equivalent, is initialed by a registered principal of the member; and

(d) Normal supervisory procedures of the member provide for a close follow-up and review of all transactions entered into with the referred to domestic bank, trust companies or other conduits for undisclosed principals to assure that the ultimate recipients of securities so sold are not persons enumerated in paragraphs (1) through (6) hereof.

8. Sell any of the securities to a foreign broker/dealer or bank unless:

(a) In the case of a foreign broker/dealer or bank which is participating in the distribution as an underwriter, the agreement among underwriters contains a provision which obligates the said foreign broker/dealer or bank not to sell any of the securities which it receives as a participant in the distribution to persons enumerated in paragraphs (1) through (5) above, or in a manner inconsistent with the provisions of paragraph (6) hereof; or

(b) In the case of sales to a foreign broker/dealer or bank which is not participating in the distribution as an underwriter, the selling member:

(i) Makes an affirmative inquiry of such foreign broker/dealer or bank as to whether the ultimate purchasers would be persons enumerated in paragraphs (1) through (5) hereof and receives satisfactory assurance that the ultimate purchasers of the securities so purchased would not be such persons, and that the securities would not be sold in a

manner inconsistent with the provisions of paragraph (6) hereof;

(ii) A recording is made on the order ticket, or its equivalent, or upon some other supporting document, of the name of the person to whom the inquiry was made at the foreign broker/dealer or bank as well as the substance of what was said by that person and what was done as a result thereof; and

(iii) The order ticket, or its equivalent, is initialed by a registered principal of the member.

The obligations imposed upon members in their dealings with foreign broker/dealers or banks by this paragraph 8(b) can be fulfilled by having the foreign broker/dealer or bank to which sales falling within the scope of this Interpretation are made execute Form RF–1, or a reasonable facsimile thereof. This form, which gives a blanket assurance from the foreign broker/dealer or bank that no sales will be made in contravention of the provisions of this Interpretation, can be obtained at any District Office of the Association or at the Executive Office. The acceptance of an executed Form FR–1, or other written assurance, by a member must in all instances be made in good faith. Thus, if a member knows or should have known of facts which are inconsistent with the representations received, such will not operate to satisfy the obligations imposed upon him by this paragraph.

Scope and Intent of Interpretation

In addition to the obvious scope and intent of the above provisions, the intent of the Board of Governors in the following specific situations is outlined for the guidance of members.

Limited Business Broker/Dealer

The restrictions placed on associated persons pursuant to Paragraph 2 of the Interpretation shall not apply to persons associated with NASD members engaged solely in the purchase or sale of either investment company/variable contracts securities or direct participation program securities.

Issuer Directed Securities

This Interpretation shall apply to securities which are part of a public offering notwithstanding that some or all of those securities are specifically directed by the issuer to accounts which are included within the scope of paragraphs (3) through (8) above. Therefore, if a person within the scope of those paragraphs to whom securities were directed did not have *the required* [an] investment history [with the member or registered representative from whom they were to be purchased], the member would not be permitted to sell him such securities. Also, the "disproportionate" and "insubstantial" tests would apply as in all other situations. Thus, the directing of a substantial number of securities to any one person would be prohibited as would the directing of securities to such accounts in amounts which would be disproportionate as compared to sales to members of the public. *If such issuer-directed securities are sold to the issuer's employees or directors or potential employees or directors resulting from an intended merger, acquisition, or other business combination, such securities may be sold without limitation as to amount and regardless of whether such employees have an investment history as required by the Interpretation; provided, however, that in the case of an offering of securities for which a bona fide independent market does not exist, such securities shall not be sold, transferred, assigned, pledged, or hypothecated for a period of three months following the effective date of the offering.* This Interpretation shall also apply to securities which are part of a public offering notwithstanding that some of those securities are specifically directed by the issuer on a non-underwritten basis. In such cases, the managing underwriter of the offering shall be responsible for insuring compliance with this Interpretation in respect to those securities.

Notwithstanding the above, sales of issuer directed securities may be made to *non-employee/director* restricted persons without the required investment history after receiving permission from the Board of Governors. Permission will be given only if there is a demonstration of valid business reasons for such sales (such as sales to distributors and suppliers [or key employees], who are in each case incidentally restricted persons), and the member seeking permission is prepared to demonstrate that the aggregate amount of securities so sold is insubstantial and not disproportionate as compared to sales to members of the public, and that the amount sold to any one of such persons is insubstantial in amount; *provided, however, that such securities shall not be sold, transferred, assigned, pledged, or hypothecated for a period of three months following the effective date of the offering.*

Stand-By Purchasers

Securities purchased pursuant to a stand-by arrangement shall not be subject to the provisions of the Interpretation if the following conditions are met:

1. *The stand-by agreement is disclosed in the prospectus.*
2. *The stand-by arrangement is the subject of a formal written agreement.*
3. *The managing underwriter represents in writing that it was unable to find any other purchasers for the securities.*
4. *The securities purchased shall be restricted from sale or transfer for a period of three months.*[2]

Investment Partnerships and Corporations

A member may not sell [securities of a public offering which trade at a premium in the secondary market whenever such secondary market begins ("hot issue"),] *a hot issue* to the account of any investment partnership or corporation, domestic or foreign (except companies registered under the Investment Company Act of 1940) including but not limited to, hedge funds, investment clubs, and other like accounts unless the member complies with either of the following alternatives:

(A) prior to the execution of the transaction, the member has received from the account a current list of the names and business connections of all persons having any beneficial interest in the account, and if such information discloses that any person [enumerated in paragraphs (1) through (4) hereof] *restricted under this Interpretation* has a beneficial interest in such account, any sale of securities to such account must be consistent with the provisions of this Interpretation, or

(B) prior to the execution of the transaction, the member has obtained a copy of a *written representation* [current opinion] from counsel admitted to practice law before the highest court of any state *or the account's independent certified public accountant* stating that *such* counsel *or accountant* reasonably believes that no person with a beneficial interest in the account is a restricted person under this Interpretation and stating that, in providing such [opinion] *representation*, counsel *or accountant*:

(1) Has reviewed and is familiar with this Interpretation;

(2) Has reviewed a current list of all persons with a beneficial interest in the account supplied by the account manager;

(3) Has reviewed information supplied by the account manager with respect to each person with a beneficial interest in the account, including the identity, the nature of employment, and any other business connections of such persons; and

[2] When the securities are sold by stand-by purchasers, the stand-by purchasers would need to comply with all applicable regulatory requirements including prospectus delivery pursuant to Section 5 of the Securities Act of 1933 ("Securities Act").

(4) has requested and reviewed other documents and other pertinent information and made inquiries of the account manager and received responses thereto, if counsel *or the accountant* determines that such further review and inquiry are necessary and relevant to determine the correct status of such persons under the Interpretation.

The member shall maintain a copy of the names and business connections of all persons having any beneficial interest in the account or a copy of the current [opinion of counsel] *written representation* in its files for at least three years following the member's last sale of a new issue to the account, depending upon which of the above requirements the member elects to follow. For purposes of this section, a list or [opinion] *written representation* shall be deemed to be current if it is based upon the status of the account as of a date not more than 18 months prior to the date of the transaction.

Beneficial Interest

The term beneficial interest means not only ownership interests, but every type of direct financial interest of any persons enumerated in paragraphs (1) through (4) hereof in such account [, including, without limitation, management fees based on the performance of the account].

Provided, however, that no restricted person shall be deemed to have a beneficial interest in an account receiving a hot issue as a result of ownership of an interest in an investment partnership or corporation, or similar type account ("investment entity"), if the following conditions are met.

1. The investment entity establishes a separate brokerage account, with a separate identification number, for its new-issue purchases. At the end of each fiscal year, the general partner, or similarly situated party, will certify in writing to its independent certified public accountants that: (a) all hot issues purchased by the investment entity were placed in this new-issue account; and (b) that the participants in the new-issue account are not restricted persons under this Interpretation.

2. Prior to the execution of the initial hot issue transaction, the investment entity's accountant or attorney will provide a written representation that complies with paragraph B of the section of this Interpretation entitled "Investment Partnerships and Corporations."

3. As part of its audit procedure for the investment entity, the indendent certified public accountant will confirm in writing to the investment entity that all allocations for the new-issue account were made in accordance with the provisions of the applicable investment entity agreement that restricts participation in hot issue purchases.

4. The investment entity will maintain in its files copies of the certifications, representations, and confirmations referred to in paragraphs (1)–(3) above for at least three years following the last purchase of a hot issue for the new-issue account.

5. The investment entity will accept investment funds from other investment entities only if such other accounts provide the same documentation and assurances described in paragraphs (1)–(4) above that restricted persons will not participate in the purchase of hot issues.

6. The certifications and documents required in paragraphs (1)–(3) above shall be provided to the member holding such account at such time as these certifications and documents are filed with the investment entity and its independent certified public accountant and, the member shall make such documentation available to the NASD upon request.

Venture Capital Investors

This Interpretation shall not prohibit the sale of hot issues in an initial public offering to a person restricted under the Interpretation or to an account in which such restricted person has a beneficial interest (a "Venture Capital Investor") if the following conditions are met:

1. The Venture Capital Investor has held an ownership interest in the company issuing the hot issue securities for a period of one year prior to the effective of the public offering;

2. The acquisition of the hot issue securities in the public offering does not increase the percentage equity ownership of the Venture Capital Investor in the company above that held three months prior to the filing of the registration statement in connection with the offering;

3. The Venture Capital Investor received no special terms in connection with the purchase; and

4. The securities purchased shall be restricted from sale or transfer for a period of three months following the conclusion of the offering.

Violations by Recipient

In those cases where a member or person associated with a member has been the recipient of securities of a public offering to the extent that such violated the Interpretation, the member or person associated with a member shall be deemed to be in violation of Article III, Section 1 of the Rules of Fair Practice and this Interpretation as well as the member who sold the securities since their responsibility in relation to the public distribution is equally as great at that of the member selling them. In those cases where a member or a person associated with a member has caused, directly or indirectly, the distribution of securities to a person falling within the restrictive provisions of this Interpretation the member or person associated with a member shall also be deemed to be in violation of Article III, Section 1 of the Rules of Fair Practice and this Interpretation. Receipt by a member or a person associated with a member of securities of a hot issue which is being distributed by an issuer itself without the assistance of an underwriter and/or selling group is also intended to be subject to the provisions of this Interpretation.

Violations by Registered Representative Executing Transaction

The obligation which members have to make a bona fide public distribution at the public offering price of securities of a hot issue is also an obligation of every person associated with a member who causes a transaction to be executed. Therefore, where sale are made by such persons in a manner inconsistent with the provisions of this Interpretation, such persons associated with a member will be considered equally culpable with the member for the violations found taking into consideration the facts and circumstances of the particular case under consideration.

Disclosure

The fact that a disclosure is made in the prospectus or offering circular that a sale of securities would be made in a manner inconsistent with this Interpretation does not take the matter out of its scope. In sum, therefore, disclosure does not affect the proscriptions of this Interpretation.

Explanation of terms

The following explanation of terms is provided for the assistance of members. Other words which are defined in the By-Laws and Rules of Fair Practice shall, unless the context otherwise requires, have the meaning as defined therein.

Associated Person

A person associated with a member or any other broker/dealer, as defined in Article I, paragraph (m) of the NASD's By-Laws, shall not include a person whose association with the member is limited to a passive ownership interest in the member of ten percent or less, and who does not receive hot issues from the member in which he or she has

the ownership interest; and that such member is not in a position to direct hot issues to such person.

Public Offering

The term public offering shall mean *any primary or secondary distribution of securities made pursuant to a registration statement or offering circular including exchange offers, rights offerings, offerings made pursuant to a merger or acquisition, straight debt offerings and all other securities distributions of any kind whatsoever except any offering made pursuant to an exemption under Section 4(1), 4(2) or 4(6) of the Securities Act of 1933,* as amended, or pursuant to Rule 504 (unless considered a public offering in the states where offered), Rule 505 or Rule 506 adopted under the Securities Act of 1933, as amended [all distributions of securities whether underwritten or not; whether registered, unregistered or exempt from registration under the Securities Act of 1933, and whether they are primary or secondary distributions, including intrastate distributions and Regulation A issues, which shall at an immediate premium, in the secondary market]. It shall not mean exempted securities as defined in Section 3(a)(12) of the Securities Exchange Act of 1934.

Immediate Family

The term immediate family shall include parents, mother-in-law or father-in-law, husband or wife, brother or sister, brother-in-law or sister-in-law, son-in-law or daughter-in-law, and children. In addition, the term shall include any other person who is supported, directly or indirectly, to a material extent by the member, person associated with the member or other person specified in paragraph[s] (2)[, (3), or (4)] above.

Normal Investment Practice

Normal investment practice shall mean the history of investment of a restricted person in an account or accounts maintained by the restricted person. [maintained with the member making the allocation. In cases where an account was previously maintained with another member, but serviced by the same registered representative as the one currently servicing the account for the member making the allocation, such earlier investment activity may be included in the restricted person's investment history.]

* * * * *

Disproportionate

In respect to the determination of what constitutes a disproportionate allocation, the Association uses a guideline *of* 10% of the member's participation in the issue, however acquired.

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Insubstantiality

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Sales By Issuers in Conversion Offerings

Definitions

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Conditions for Exemption

(b) * * *

Sales to Members, Associated Persons of Members and Certain Related Persons

(1) If the purchaser is a member, person associated with a member, member of the immediate family of any such person to whose support such person contributes, directly or indirectly, or an account in which a member or person associated with a member has a beneficial interest:

(A) the purchaser shall be an eligible purchaser;

(B) the securities purchased shall be restricted from sale or transfer for a period of [150 days] *three months* following the conclusion of the offering; and

(C) the fact of purchase shall be reported in writing to the member where the person is associated within one day of payment.

Sales to Other Restricted Persons

(2) If the purchaser is not a person specified in Subsection (b)(1) above, *and is* [the purchaser shall be] an eligible purchaser *pursuant to Subsection (a)(2), the conditions of Subsection (b)(1) shall not apply to such purchaser.*

* * * * *

II. Self-Regulatory Organization's Statement of the Purpose of and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the NASD included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements are set forth in Sections (A), (B), and (C) below.

(A) Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

(i) Purpose of the Proposed Rule Change

(a) Overview of Free-Riding and Withholding Interpretation. The purpose of the Interpretation is to protect the integrity of the public offering system by ensuring that members make a bona fide public distribution of "hot issue" securities and do not withhold such securities for their own benefit or use the securities to reward other persons who are in a position to direct future business to the member. Hot issues are defined by the Interpretation as securities of a public offering while trade at a premium in the secondary market whenever such trading commences. The Interpretation prohibits members from retaining the securities of hot issues in their own accounts and prohibits members from using sales of such securities to directors, officers, employees and associated persons of members and other broker/dealers. It also restricts member sales of "hot issue" securities to the accounts of specified categories of persons, including among others, senior officers of banks, insurance companies, registered investment companies, registered investment advisory firms and other persons within such organizations whose activities influence or include the buying or selling of securities. These basic prohibitions and restrictions are also made applicable to sales by members of hot issue securities to accounts in which any such persons may have a beneficial interest and, with limited exceptions, to members of the immediate family of those persons restricted by the Interpretation.

(b) *Rule proposal background.* At its May 1992 meeting, the Board of Governors appointed a special committee (the "Committee") to examine the Interpretation to determine if the Interpretation's restrictions, definitions and obligations are relevant in today's securities markets. The Committee was comprised of representatives of the Association's National Business Conduct, Corporate Financing and Insurance Affiliated Members Committees as well as members of the NASD Board of Governors. The Board also asked the Committee to examine various interpretative issues that had been raised with the NASD. The Committee met numerous times from May 1992 until April 1993 and received input and suggestions, both in writing and in person, from members, issuers, law firms, the NASD's Legal Advisory Board, and the staff of various NASD departments.

In June 1993, the NASD published for comment proposed modifications to the Interpretation based on its review and suggestions received. The NASD received 36 comment letters on the proposed modifications. The Committee considered the comments and made

final recommendations to the National Business Conduct Committee ("NBCC") in November 1993. The Board considered and approved the NBCC's recommendations on November 14, 1993.

The proposed rule change includes language clarifications to facilitate understanding of the Interpretation's application, as well as substantive modifications. The following discusses the substantive modifications proposed.

(c) *Substantive proposed modifications.* The NASD is proposing several substantive modifications to the Interpretation, including changes in connection with limited business broker/dealers, investment partnerships and corporations, stand-by arrangements, venture capital investors, securities offerings covered by the Interpretation, and issuer-directed securities. The NASD believes that the proposed substantive changes clarify the scope of the Interpretation and remedy certain unintended effects the Interpretation has had in its present form. Specifically, the NASD believes that the Interpretation has prohibited transactions which do not implicate the Interpretation's objective of a bona fide distribution of hot issue securities to the public, and may have created unduly burdensome restrictions and expense for NASD members and their customers. Thus, the NASD believes that the proposed changes, described further below, appropriately restrict prohibited persons from receiving hot issues without engendering unintended restrictions inconsistent with the purpose of the Interpretation.

1. Stand-by arrangements. If an offering begins trading at a premium when the secondary market begins, the Interpretation's restrictions are implicated and may affect the successful completion of the offering by prohibiting the sale to stand-by purchasers, due to a person restricted under the Interpretation having a beneficial interest in the stand-by account. The NASD believes that securities purchased pursuant to a stand-by arrangement (*i.e.*, an agreement to purchase securities not purchased during the offering period) by a restricted account should not be subject to the Interpretation if the conditions proposed are met. The NASD believes that the proposed conditions (prospectus disclosure, a formal agreement, absence of any other purchaser and a three month holding period) remedy any potential derogation from the Interpretation that such a sale could cause, while facilitating a bona fide distribution of the securities offered.[3]

2. Definition of immediate family. The Interpretation presently restricts immediate family members of persons enumerated in Paragraph 2 (persons associated with broker/dealers), and Paragraphs 3 and 4 of the Interpretation (persons having a connection to the offering and individuals related to banks, insurance companies and other institutional type accounts) from participating in hot issue distributions. The Interpretation defines immediate family members very broadly and includes such persons as father-, mother-, brother- and sister-in-law. An immediate family member of a person associated with a broker/dealer is prohibited from purchasing hot issues to the same degree as the associated person, unless it can be demonstrated that the associated person does not contribute directly or indirectly to the support of the immediate family member. In the latter circumstance, the immediate family member of the associated person may purchase a hot issue under the same conditions as those persons restricted pursuant to Paragraphs 3 and 4 of the Interpretation. Specifically, such persons may purchase hot issues if: (1) The securities were sold to such persons in accordance with their normal investment practice with the member making the distribution; and (2) the securities sold are insubstantial and not disproportionate in amount as compared to sales to members of the public and that the amount sold to any one such person is insubstantial.

The NASD believes that in its present form, the immediate family member provisions often place inequitable restrictions on a person with a fairly attenuated connection to a restricted person named in the Interpretation (*e.g.*, the sister-in-law of a bank vice-president), and often result in unduly burdensome compliance difficulties for members monitoring whether such persons are restricted or become restricted. The NASD believes that the proposed modifications to the immediate family member provisions will ensure that those persons with a substantial nexus to a restricted person will be similarly restricted under the Interpretation, provide a clearer test for NASD members in determining whether such persons are restricted, and eliminate the Interpretation's application to persons not intended to be restricted.

The proposed modifications would:

(a) retain the investment history exemption, and expand it to include the use of investment history at firms other than the member making the allocation. The burden of obtaining such information would remain with the firm making the sale;

(b) eliminate the immediate family restrictions on persons other than those associated with broker/dealers (categories 3 and 4 referenced above) and the Interpretation would only apply to the enumerated individuals in those categories and to persons who are supported directly or indirectly to a material extent by the restricted person;

(c) with respect to persons associated with broker/dealers, continue to apply the immediate family restrictions to persons supported by the restricted individual and to allocations by the restricted individual's firm, but would no longer prohibit sales to non-supported family members of a person associated with a broker/dealer by a broker/dealer that does not employ the restricted person, where the restricted person has no ability to control the allocation of the hot issue.

There would continue to be a violation if it could be determined that the restricted person has a beneficial interest in the account to which an allocation was made.

3. Venture capital investors. The NASD believes that bona fide venture capital investors should be allowed to purchase a hot issue to maintain their percentage ownership in an entity, notwithstanding that the venture capital investor may be a restricted person, or that such person may have a beneficial interest in the venture capital account. The NASD notes that the venture capital investor often plays a pivotal role in the continued viability of an entity prior to its public offering, and that such an investor should be allowed to maintain his or her own ownership interest after the entity completes its public offering.

The venture capital investor, in order to purchase the hot issue without implicating the Interpretation's restrictions, would have to meet the following conditions:

(a) one year of preexisting ownership in the entity;

(b) no increase in the investor's percentage ownership above that held for the three months prior to the filing of a registration statement in connection with the initial public offering;

(c) a lack of special terms in connection with the purchase; and

(d) the venture capital investor shall not assign, sell, pledge, hypothecate or

[3] Of course, any resales by the stand-by purchasers would need to be conducted in compliance with all applicable regulatory requirements including prospectus delivery pursuant to Section 5 of the Securities Act of 1933.

otherwise dispose of the securities for a period of three months following the effective date of the registration statement in connection with the offering.

The NASD believes that the conditions imposed on the venture capital investor ensure that the securities may be purchased by a bona fide venture capital investor who has had an on-going interest in an entity, and protect against any attempt to circumvent the Interpretation's restrictions by investing in an entity shortly before its public offering.

4. Investment partnerships and corporations. The Interpretation, under "Investment Partnerships and Corporations," generally disallows sales of a hot issue to an investment partnership or corporation, or similar account ("investment partnership") if a restricted person has a beneficial interest in the entity. Thus, an investment partnership with several limited partners would be "tainted" due to the limited partnership interest of the restricted person. In August 1992 and October 1993 Notices to Members, the NASD announced it was going to allow investment partnerships, on an interim basis, to use a "carve out" mechanism to prevent restricted persons with an interest in an investment partnership from participating in hot issue allocations. This "carve out" mechanism requires the NASD member making such allocation to set up a separate account for these transactions and obtain from the investment partnership and its accountants documentation that indicates that the restricted persons are prevented from participating in a hot issue allocation.

The NASD believes that the carve-out methodology is the most equitable and appropriate approach for investment partnerships in which restricted persons have a beneficial interest, and that the carve-out procedure should be codified as proposed under the Beneficial Interest section of the Interpretation. The carve-out procedure would not allow a person restricted under the Interpretation to receive a hot issue allocation inconsistent with the Interpretation's provisions; but would also not inequitably penalize those not restricted under the Interpretation due to their interest in an investment partnership in which a restricted person also has an interest. A typical scenario is where a limited partnership with a large number of limited partners is restricted under the Interpretation because one of the limited partners is an officer of an insurance company, and therefore restricted under Paragraph 4 of the Interpretation. Rather than restricting the whole limited partnership, the carve-out procedure would allow the limited partnership to purchase the hot issue by properly allocating the hot issue away from the restricted limited partner according to the specified requirements proposed.

In addition, the NASD believes that a beneficial interest, as defined under the Interpretation, should not be created by the receipt of a management fee based on the performance of an account. The NASD believes that investment partnerships and other similar accounts typically require that the management fee structure of such accounts include a performance-based component. Thus, an investment advisor restricted under Paragraph 4 of the Interpretation could restrict an entire investment partnership, in which no restricted persons have an interest, based solely on the investment advisor receiving a fee based on the performance of the securities in the investment partnership account. The Beneficial Interest provision of the Interpretation is intended to address those accounts in which a restricted person has a substantive, albeit not necessarily direct ownership, interest that should be appropriately restricted. The NASD believes that the receipt of a performance-based fee, without the existence of any other beneficial interest, should not create such an interest.

5. Definition of public offering. In its present form, the Interpretation's definition of a public offering includes virtually any and all distributions of securities, whether registered or unregistered under the Securities Act. The NASD has found that the definition has had the unintended effect of implicating the Interpretation's restrictions for bona fide private placements of securities which do not present the potential abuses that the Interpretation is intended to guard against. The NASD believes that the proposed modification to the definition, which in essence does not apply the Interpretation to a traditional private placement of securities, is appropriate because such distributions generally are limited in scope and have holding periods placed on the privately placed securities. Thus, the NASD believes that such placements should not be within the purview of the Interpretation in that distribution is limited and that the potential for restricted persons to purchase the securities and resell or "flip" them in a short period of time is limited due to the resale restrictions placed on such offerings.

6. Associated person definition. Article I, Section (m) of the NASD By-Laws defines a "person associated with a member" to include a partner of a broker/dealer and any person who is directly or indirectly controlling or controlled by such member, whether or not such person is registered with the Association. The NASD has found that a certain degree of confusion exists as to the status of passive investors in broker/dealers, such as broker/dealer limited partners, equity owners, or subordinated lenders.

The NASD believes, that under certain circumstances, such persons should not be considered persons associated with a broker/dealer due to their limited, passive investment in a broker/dealer. Thus, the NASD has proposed that if a person owns or has contributed 10% or less to a broker/dealer's capital, such person should not be construed to be an associated person; provided that, such ownership interest is a passive investment, the person does not receive hot issues from the member in which she has the interest, and that the broker/dealer is not in a position to direct hot issues to the person. The NASD believes that the limitations placed on such persons in order not to be considered associated persons will prevent the same from attempting to use their ownership interests in a broker/dealer to effect the purchase of hot issues, and circumvent the Interpretation's objective of a bona fide distribution of a hot issue.

7. Persons associated with limited business broker/dealers. Similar to the status of persons with a limited ownership interest in a broker/dealer, the NASD believes that persons associated with certain broker/dealers that transact a limited securities business should also not be restricted as other associated persons under Paragraph 2 of the Interpretation. Specifically, the NASD proposes that persons associated with broker/dealers whose business is limited to direct participation programs or investment company/variable product securities not be restricted under the Interpretation to the same extent as those persons associated with broker/dealers with a more comprehensive securities business.

Typically, a broker/dealer's business is limited pursuant to a restrictive agreement executed by the member as a condition to its membership in the Association. In that persons associated with such limited broker/dealers are not in a position to sell, distribute, or withhold hot issue securities, the NASD does not believe that such persons would be in a position to inhibit a bona fide distribution of a hot issue security. The NASD notes that the proposed

modification applies only to a person associated with such a limited broker/dealer, and not to the broker/dealer itself. The NASD does not believe that it is appropriate for any NASD member to purchase a hot issue security for its own account, regardless of the extent of its securities business.

8. Issuer directed securities. Presently, an employee of an issuer, who also is restricted under the Interpretation, must receive permission from the NASD Board of Governors in order to purchase hot issue securities of its employer, if the employee does not have the requisite investment history with the NASD member making the securities distribution. For example, an employee of a manufacturing company who is married to the senior officer of a bank would be restricted under the Interpretation because he or she is the immediate family member of a restricted person under Paragraph 3 of the Interpretation. Under the proposed changes to Paragraph 3 of the Interpretation, the employee would still be restricted if the senior officer of the bank directly or indirectly supports the employee. If permission is granted by the board of governors, the employee is allowed to purchase the securities of the employer without meeting the investment history requirement, but the amount purchased would still have to meet the insubstantial and not disproportionate tests described above.

The NASD believes that it is inequitable to impose such restrictions on employees of issuers who are in most cases tangentially restricted under the Interpretation, in connection with their purchase of securities issued by their employer. The NASD notes that issuer-directed share programs are viewed as a valuable tool in employee development and retention, and does not believe that the objectives of the Interpretation are furthered by imposing essentially the same restrictions on such purchases as those not involving an employer/employee relationship. Thus, the proposed modifications to the Issuer Directed Securities section of the Interpretation will allow employees of issuers to purchase hot issue securities of the employer under the same terms and conditions as persons associated with NASD members are permitted in connection with purchases of securities issued by the member, pursuant to an exemption provided in Section 13 of Schedule E to the NASD's By-Laws.

9. *Cancellation safe harbor.* The NASD believes that it is appropriate to clarify in the Interpretation that it will not be a violation if a NASD member makes an allocation of a hot issue to a restricted person or account, so long as the member cancelled the trade and reallocated the security at the public offering price to an unrestricted account, prior to T+1 of the initial transaction. The NASD believes that the clarification will remedy any concerns caused by inadvertent violations of the Interpretation that are corrected by the NASD member making the distribution. Sales following cancellation would need to be made in compliance with applicable laws, including section 5 of the Securities Act.

(ii) Statutory Basis For Proposed Rule Change

The NASD believes that the proposed rule change is consistent with the provisions of Section 15A(b)(6) of the Act in that the proposed changes to the Interpretation will promote just and equitable principles of trade by facilitating the bona fide distribution of hot issue securities to the public, and protect against the receipt of hot issues by persons restricted under the Interpretation. Further, the NASD believes that the proposed changes and clarifications to the Interpretation are consistent with Section 15A(b)(9) in that they alleviate certain inequities caused by the Interpretation, which imposed burdens on competition not necessary or appropriate in furtherance of the purposes of the Act.

(B) Self-Regulatory Organization's Statement on Burden on Competition

The NASD does not believe that the proposed rule change will result in any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act, as amended.

(C) Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received From Members, Participants, or Others

The Association received 36 letters commenting on Notice To Members 93–40 (the "Notice"), the proposed amendments to the Interpretation. The commenters include the American Bar Association, the Securities Industry Association, twelve law firms, nine investment advisers/asset managers, seven broker/dealers, three insurance companies, two associations, and one CPA firm. Below is a summary of the more significant and/or recurring issues raised in the letters and the NASD's position in connection with the same. The topics addressed follow the order in which they were presented in the Notice, beginning at page 258. Following that discussion are topics not included in the Notice, but raised in the comment letters.

Securities to be Covered

With regard to the solicitation of comments on debt securities, those who did comment recommended that rated debt securities, especially corporate debt securities, be excluded from the Interpretation. The commenters maintained, in general, that the pricing of such securities is made in conjunction with a comparison to U.S. Treasury securities, that their price fluctuates relative to interest rates, and that such securities are typically considered fungible by investors, *i.e.*, investors look for a certain grade of debt, and do not focus on the issuer, as in equity offerings. Thus, they maintained that the abuses that the Interpretation seeks to prevent are not evident in rated debt offerings, and that the Interpretation's methodology is inapplicable to the trading of such securities.

The NASD has considered that it does not typically bring enforcement actions in this area, but has concluded that the continued coverage of debt securities is warranted for purposes of deterring any potential future problems in this area.

Stand-by Arrangements

Those who commented generally supported the proposal. One commenter maintained that the five-month holding period was too long in that it went beyond the period in which the purchaser should be exposed to the market risk for the securities. It proposed a holding period of no longer than three months, which it maintains is adequate time for the market to establish some equilibrium for the security. Another commenter believed that it is unclear to whom an underwriter has to represent that it was unable to find any other purchaser for the securities, and suggested that a representation in the prospectus should suffice.

The NASD believes that the various holding periods under the Interpretation and in the Free-Riding provisions of Schedule E to the By-Laws dealing with offerings by members of their own securities should be uniform and has therefore proposed a three month holding period.

Cancellation of Trades as "Safe Harbor"

One commenter believed that there would not be any implications under SEC Rule 10b–6 for the proposed safe harbor so long as the cancellation and reallocation was completed before settlement date. A different commenter suggested that any concerns with Rule 10b–6 could be remedied by obtaining a no-action letter from the SEC. Another

commenter suggested that any notice of cancellations and reallocations would have to be given to the restricted purchaser no later than the day after purchase, and a further commenter maintained that the proposal was too reactive. It suggested that the NASD establish a procedure where hot issues were characterized as such before the distribution via indications of interest, so as to prevent sales to restricted accounts.

The NASD notes that for purposes of Rule 10b–6, a distribution includes "the entire process by which in the course of a public offering the block of securities is dispensed and ultimately comes to rest in the hands of the investing public."[4] Thus, a distribution continues if a broker-dealer withholds any part of an offering in proprietary or nominee accounts and later sells those securities to the public after secondary trading has begun.[5] Moreover, a cancellation of a bona fide purchase order will not reopen the distribution where there is no reason for the underwriter to believe that the purchase order would be cancelled.[6] Whether a particular cancellation and reallocation for purposes of compliance with the Interpretation will raise an issue under Rule 10b–6 will depend upon the facts and circumstances involved in that cancellation and reallocation.

Immediate Family

Those who commented strongly supported the lifting of the immediate family restrictions on persons restricted under Paragraphs three and four of the Interpretation. One commenter expressed concern that the retention of the immediate family restriction in connection with allocations by the broker/dealer that employs the restricted person (as opposed to allocations by broker/dealers that do not employ the restricted person) creates a new category of restricted persons that may prove burdensome for the member who is making the distribution.

The NASD does not believe that any new restricted category is being created and believes that the proposed modifications are appropriate.

Persons With Limited Registration or Limited Purpose Broker/Dealers

Several of the commenters supported the proposed exemption as described in the Notice. In addition, virtually all proposed that the exemption be expanded to apply to all persons, notwithstanding their level of registration, if they are associated with broker/dealers that do a limited business. They maintained generally that such representatives are proscribed from doing any securities business which is beyond the scope of the limited broker/dealer's prescribed business (*e.g.*, investment company securities), and maintained that the potential for abuse by one that has a general license is unlikely. Some of the commenters contended that limited broker/dealer representatives often have a Series 7 (general securities representative) license in order to comply with state law, and one commenter maintained that the exemption as proposed would create a disincentive for persons with limited registrations from seeking further registration/education. Various commenters believed that a firm-based exemption should include the firms listed in the Notice as well as firms that do not underwrite or distribute initial public offerings, merger and acquisition boutique firms that do not trade, and private placement firms.

The NASD does not believe that it is appropriate for any NASD member to purchase a "hot issue" for its own account and that the categories of exemption should not be expanded to include member firms or expanding the categories to be exempted. The NASD, however, agrees with the suggestion of several commentators that this exemption be expanded to cover all persons associated with direct participation program or investment company/variable product broker/dealers regardless of their registration status. The Association has considered that the NASD's Membership Committee encourages members to qualify their registered persons through Series 7 even if they are going to do limited activities and that these individuals should not be penalized for holding such licenses.

Investment Partnerships and Corporations

There were several comments on the proposed changes, and opposition to applying the Interpretation to investment partnerships and corporations in general. First, all those who commented on substituting a certified public account's certification in lieu of an attorney opinion letter, including the American Institute of Certified Public Accountants ("AICPA"), maintained that the certification would not work because the certification is more legal than factual, and because the analysis for certification would not comply with the "Attestation Standards" necessary for a CPA to render such a certification.

Notwithstanding the proposed amendments, several of the Commenters had general policy concerns with investment partnerships and corporations. Most believed that the Interpretation should not apply to partnerships because: (1) partnerships typically represent interests of individual investors, thus the objectives of a bona fide distribution are furthered by distribution to partnerships; and (2) the Interpretation unfairly discriminates between mutual fund type accounts and partnerships because of size, maintaining that there is no need for delineation because most limited partners have no control over the purchase and sale of securities for the account and do not exercise any discretion. One commenter maintained that precedent for such a position could be found in rules and interpretations under § 16 of the Exchange Act, which does not require officers to disgorge profits resulting from transactions through investment partnerships.

Further, most maintained that receipt of performance-based fees alone should not restrict an account, maintaining that partnership law typically requires that a general partner/manager maintain some *de minimis* equity position in the partnership. In addition, one commenter believed that the responsibility for opening up a separate hot issue account should rest with the member. Several of the commenters suggested various *de minimis* provisions which would allow the participation by investment partnerships in hot issues, notwithstanding the presence of a restricted person(s).

The NASD has considered the comment of the AICPA that accountants cannot provide the certification proposed in the Notice and therefore has proposed that a written representation of an accountant *or* counsel be substituted for the accountant's certification. This written representation would replace the existing "opinion of counsel" under paragraph B of the Investment Partnerships and Corporations section of the Interpretation. The NASD believes that the proposed "written representation" satisfies the Association's objective of ensuring that Members seek the counsel of an independent, qualified third party in meeting their obligations under the Interpretation, while not imposing any requirements that are unduly burdensome or unnecessarily problematic.

[4] *R. A. Holman & Co. v. SEC*, 366 F.2d 446, 449 (2d Cir. 1966), *modified on other grounds*, 377 F.2d 665 (2d Cir. 1966), *cert. denied*, 389 U.S. 991 (1967).

[5] *Wall Street West, Inc.*, 47 S.E.C. 1003, 1005 (1984).

[6] *Id.*

The NASD has also considered various comments that indicate that more trustees and institutional investors are demanding that performance-based fees be charged rather than asset based fees for money management services and therefore has proposed that performance-based fees be deleted from the definition of beneficial interest under the Interpretation.

In response to other comments, the NASD believes that securities placed into a carved out "hot issue" account should remain in that account until sold. The Association does not believe that such securities should be subject to "journaling" to the regular account after a specified time period in that such a procedure would be difficult to monitor.

Foreign Mutual Funds

The Board of Governors solicited comment as to exempting foreign mutual funds from the Investment Partnerships and Corporations section of the Interpretation, similar to the exemption provided for sales to investment companies registered under the Investment Company Act of 1940. One commenter suggested that the exemption apply only to foreign investment companies which are subject to regulation under foreign laws expressly designed for investment companies and/or satisfy minimum standards that the NASD would establish. Another commenter expressed disappointment that the Notice did not address the application of the Interpretation to foreign broker/dealers in general.

The NASD is concerned as to whether the Association can adequately determine whether a foreign country's mutual fund regulation is similar to our own. The NASD has concluded, therefore, that no provisions should be adopted at this time. If, however, the NASD can develop a substantial equivalence standard, the issue could be revisited.

Venture Capital Investors

Those who commenter generally supported the exemption, and proposed certain revisions. One commenter maintained that allowing the venture capital investor to purchase only up to his percentage ownership for the prior year was too limiting in that a venture capitalist could make a crucial contribution after the one year mark, well before the issuer goes public, and should be able to recover that contribution in stock. Another commenter believed that the requirement that no special terms be received by the purchasers should be qualified to limit that to "special terms from the member" because a venture capitalist typically enters into special arrangements with the issuer which could be construed as prohibited special terms.

The NASD believes it is an appropriate requirement that a venture capital investor have an ownership interest in the entity for at least one year prior to the offering; however, in response to the comments, the NASD believes that it is appropriate to use three months before the date that the registration statement is filed as the date to be used for calculating the investors' existing ownership interest. The NASD, in keeping with its prior recommendation, believes that a three month holding period for the securities received in the distribution is appropriate.

Issues Not Addressed in the Notice

Ownership Interests in a Broker/Dealer

Several commentators asked for advice on when passive investors who are limited partners, equity owners or subordinated lenders of a broker/dealer would be construed as associated persons under the Interpretation. In other words, what ownership or contribution percentage would trigger associated person status.

The NASD believes that if the person owns or has contributed 10% or less to the firm's capital, does not receive hot issues from the member in which he has the interest, and that member is not in a position to direct hot issues to the investor, then the NASD should not construe the investor to be an associated person solely by virtue of the investment in the broker/dealer.

Category 4 Restricted Persons

Several commentators asked whether managers/advisors of hedge funds, investment partnerships or of other similar entities would be construed as a restricted person under Paragraph four of the Interpretation (sales to the senior officer of a bank, investment company or other institutional type account).

The NASD believes that managers of investment partnerships or corporations, hedge funds, and other similar accounts are clearly involved with the buying or selling of securities for an institutional type account and, as such, are restricted under Paragraph four of the Interpretation.

Private Placements

Several commentators sought advice on how the Interpretation should be applied to members who receive securities of an issuer in a private placement. The definition of "public offering" as currently set forth in the Interpretation is comprehensive. The definition includes all distributions "* * * of securities whether underwritten or not; whether registered, unregistered or exempt from registration under the Securities Act of 1933, and whether they are primary or secondary distributions, including intrastate distributions and Regulation A issues, which sell at an immediate premium, in the secondary market." As such, the definition by its terms covers these private placements. Such distributions may involve securities which are either registered or unregistered.

The NASD believes that the definition of public offering is unnecessarily broad and does not believe that the Interpretation should cover traditional "private placements" of unregistered securities. Thus, the NASD has proposed a definition of a public offering consistent with the definition provided in Schedule E to the Association's By-Laws.

Issuer Directed Exemption

Several commentators requested that employees of an issuer or the issuer's parent who are restricted persons be exempt from the Interpretation when purchasing shares of their employer or its parent. Currently, such exemptions can only be granted on a case-by-case basis by the NASD Board of Governors.

The NASD agrees that the issuer directed share exemption should be modified to allow restricted employees to purchase under the same terms and conditions as employees of member firms do under Schedule E of the By-Laws, thereby eliminating the need for applications to the NASD.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within 35 days of the date of publication of this notice in the **Federal Register** or within such longer period (i) as the Commission may designate up to 90 days of such date if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the self-regulatory organization consents, the Commission will:

A. By order approve such proposed rule change, or

B. Institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing. Persons making written submissions

should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street, N.W., Washington, D.C. 20549. Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room. Copies of such filing will also be available for inspection and copying at the principal office of the NASD. All submissions should refer to the file number in the caption above and should be submitted by [insert date 21 days from the date of publication].

For the Commission, by the Division of Market Regulation, pursuant to delegated authority, 17 CFR 200.30–3(a)(12).

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94–19444 Filed 8–9–94; 8:45 am]

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SECURITIES EXCHANGE COMMISSION

[Release No. 34–34481; File No. SR–PHLX–94–32]

Self-Regulatory Organizations; Philadelphia Stock Exchange, Inc.; Filing of a Proposed Rule Change Relating to Implementing a "Wheel" for the Registered Options Trader Contra-Side Participation to AUTO–X Trades

August 3, 1994.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"),[1] notice is hereby given that on July 18, 1994, the Philadelphia Stock Exchange, Inc. ("Phlx"or "Exchange") filed with the Securities and Exchange Commission ("Commission") the proposed rule change as described in Items I, II, and III below, which items have been prepared by the Phlx. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The Phlx, pursuant to Rule 19b–4 under the Act, proposes to adopt Floor Procedure Advice F–24, AUTO–X Contra-Party Participation (The Wheel), in order to implement an automated mechanism for assigning floor traders (*i.e.*, specialists and Registered Option Traders ("ROTs")), on a rotating basis, as contra-side participants to AUTO–X orders.

Advice F–24 codifies Wheel eligibility and the procedures by which Wheel participants must sign on/sign off. It also establishes the rotation upon which trades will be allocated among Wheel participants.

Paragraph (a) of the Advice summarizes AUTO–X eligibility by stating that public customer orders up to the maximum permissible size would be eligible for AUTO–X.[2] Paragraph (b) establishes that the Wheel will assign contra-parties by rotating through the list, in consecutive order, trade by trade. Paragraph (c) requires specialists to participate on the Wheel and permits ROTs to participate in assigned issues. It also limits ROTs to Wheel participation in one Wheel assignment area, which is defined as two contiguous quarter turrets at any one given time.[3] ROTs must sign onto the Wheel in person on the trading floor from terminals designated by the Exchange and may sign on in individual options. ROTs who sign on before 9:30 a.m. may remain on the Wheel for the entire trading day; those who sign on after 9:30 a.m. are eligible for Wheel participation beginning at 12:30 p.m. After 12:30 p.m., no new sign ons are permitted.

Paragraph (c) also governs signing off the Wheel. An ROT may sign off the Wheel at any time during the trading day, which becomes effective for all listed options. However, an ROT may sign off twice each trading day and still be eligible to sign on again that day; after the third sign off, that ROT is no longer eligible for the Wheel that day. ROTs who sign on for the half-day session beginning at 12:30 p.m. may only sign off once and still be eligible to sign on again that day. In addition, no two associated or dually affiliated ROTs may be on the Wheel for the same option at the same time. Paragraph (d) permits a Floor Official to modify the aforementioned sign on/sign off procedures in extraordinary circumstances.

Paragraph (e) details the rotation of trades among Wheel participants. Specifically, the first ten contracts of any AUTO–X order are assigned to a single Wheel participant, with the specialist receiving the first execution of the day in each respective listed option. For those AUTO–X orders greater than ten contracts, each additional ten-lot or remaining portion thereof is assigned to the next individual Wheel participant. The next order is similarly assigned, beginning with the next participant after the last to receive an execution. If there are five or more ROTs signed onto the Wheel, the specialist will receive every fifth execution, in addition to being assigned to the first AUTO–X order in the option.

Lastly, paragraph (f) states that paragraph (e) will be reviewed by the Exchange's Allocation, Evaluation, and Securities Committee after six months.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, Phlx included statements concerning the purpose of, and basis for, the proposed rule change, and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. Phlx has prepared summaries, set forth in sections (A), (B), and (C) below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

The purpose of the proposed rule change is to increase the efficiency and liquidity of order execution through AUTO–X by adopting a "Wheel" for the automated assignment of floor traders as contra-parties to incoming AUTO–X orders. The Phlx believes that the Wheel will make AUTO–X more efficient, as contra-side participation will be assigned automatically and no longer entered manually.

The AUTO–X system is the automatic execution feature of the Exchange's Automated Options Market ("AUTOM") system.[4] AUTO–X provides customers with automatic executions of eligible

[1] 15 U.S.C. § 78s(b)(1) (1989).

[2] Currently, the maximum permissible size eligible for AUTO–X is 25 contracts. Securities Exchange Act Release No. 32906 (September 15, 1993), 58 FR 49345.

[3] A turret is one contiguous portion of a post on the option floor, which is generally divided into four "quarters."

[4] AUTOM is an on-line system that allows electronic delivery of options orders from member firms directly to the appropriate specialist on the Phlx options trading floor, with electronic confirmation of order executions. On March 31, 1988, the Commission first approved the Phlx's operation of the AUTOM system on a pilot basis. Securities Exchange Act Release No. 25540 (March 31, 1988), 53 FR 11390.

option orders at displayed markets.[5] AUTO–X orders are currently given executions automatically and immediately. ROTs are added later as contra-side participants to such orders with manual keypunch entries, which can cause delays and errors in processing executions. The proposed Wheel is designed to eliminate manual keypunching of contra-side participant information relating to AUTO–X executions and the errors that sometimes result from such keypunching. It also provides a rotation schedule by which floor traders will automatically be assigned as the contra-party to AUTO–X orders and will do so in a manner that reduces the number of contra-side participants, which in most cases will be reduced to one contra-side per trade.

Currently, floor trader contra-side participation currently defaults to the account of the specialist if no step is taken to manually add the participation of a ROT. ROTs are eligible for participation when they have established priority or parity at the execution price.[6] Consequently, before contra-side information can be added, the trading crowd has to resolve among itself which floor trader(s) had priority or parity at the execution price. Quite often, several floor traders are on parity, thus requiring keypunch entries for each such trader. The more contra-side participants which must be added to a trade, the more of a delay there is in processing the participant information to the trade and the more the process becomes prone to keypunch errors and additional manual paperwork.

The Wheel will automatically include eligible ROTs in AUTO–X executions and specify how such trades will be split among the specialist and ROTs. The specialist and any signed on ROTs will be listed on the Wheel, and contra-side participation of AUTO–X orders will then be assigned to them in circular rotation with each ten lot or order (whichever is smaller) constituting an assignment. The specialist receives the first trade of the day in each respective option. Thereafter, the Wheel turns to assign trades to ROTs in an order standardized for that day on a random basis.[7]

For example, if specialist S and ROTs R, O, and T are on the Wheel in XYZ option, the first order for 9 contracts is assigned automatically to S. The next order, which is for 25 contracts, is assigned ten each to R and O, and five to T. The third order, for 20 contracts, is assigned ten contracts to S and ten to R. If there are five or more ROTs signed onto the Wheel, the specialist participates in the first trade of the day and thereafter receives every fifth execution.

The Exchange believe that the proposed AUTO–X Wheel and corresponding Advice are intended to facilitate orderly transactions in AUTO–X, with full trading crowd participation. The sign on/sign off requirements, including the assigned option and Wheel assignment area requirements, are intended to ensure that the ROT is present and actively awaiting AUTO–X orders in those options in which AUTO–X executions are to be manually received.[8]

The Phlx believes that the proposed rule change is consistent with Section 6 of the Act in general, and in particular, with Section 6(b)(5),[9] in that it is designed to promote just and equitable principles of trade, prevent fraudulent and manipulative acts and practices, as well as to protect investors and the public interest by promoting ROT participation as contra-parties to AUTO–X trades and reducing opportunities for keypunching errors through increased automation.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Phlx does not believe that the proposed rule change imposes any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

Comments on the proposed rule change have not yet been solicited or received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Within thirty days of the date of publication of this notice in the **Federal Register** or within such longer period (i) as the Commission may designate up to ninety days of such date if it finds such longer period to be appropriate and publishes its reasons for so findings or (ii) as to which the self-regulatory organizations consents, the Commission will:

(A) By order approve such proposed rule change, or

(B) Institute proceedings to determine whether the proposed rule change should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing. Persons making written submissions should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street, NW., Washington, DC 20549. Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. § 552, will be available for inspection and copying in the Commission's Public Reference Section, 450 Fifth Street, NW., Washington, DC 20549. Copies of such filing will also be available for inspection and copying at the principal office of Phlx. All submissions should refer to file number SR–Phlx–94–32 and should be submitted by August 31, 1994.

For the Commission by the Division of Market Regulation, pursuant to delegated authority.[10]

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94–19521 Filed 8–9–94; 8:45 am]

BILLING CODE 8010–01–M

[5] Orders eligible for automatic execution are (1) printed in hard copy form at the floor representative booth of the delivering member organization; (2) displayed on the trading crowd screen with buy/sell information omitted; and (3) printed in hard copy form at the specialist post.

[6] Currently, if one or more ROTs have priority or parity, the order will be split as evenly as possible between all such ROTs and the specialist.

[7] The first ROT is selected randomly from all ROTs that sign on prior to 9:30 a.m. All other ROTs are prioritized for receipt of orders based on the badge numbers following sequentially the first ROT's badge number. If other ROTs sign on for the 12:30 p.m. session, the priority list is rerandomized for that session.

[8] Currently, the specialist will only add an ROT as a contra-side participant if the ROT is present and has bid at the execution price.

[9] 15 U.S.C. § 78f(b)(5) (1988).

[10] 17 CFR 200.30–3(a)(12) (1993).

SECURITIES AND EXCHANGE COMMISSION

[Release No. IC–20440; 812–8936]

Connecticut Mutual Financial Services Series Fund I, Inc. et al.

August 3, 1994.

AGENCY: Securities and Exchange Commission (the "SEC" or the "Commission").

ACTION: Notice of Application for exemptions under the Investment Company Act of 1940 (the "1940 Act").

APPLICANTS: Connecticut Mutual Financial Services Series Fund I, Inc. (the "Fund"), G.R. Phelps & Co., Inc. ("G.R. Phelps"), and certain life insurance companies ("Participating Insurance Companies") and their separate accounts ("Separate Accounts").

RELEVANT 1940 ACT SECTIONS AND RULES: Order requested under Section 6(c) of the 1940 Act for exemptions from Sections 9(a), 13(a), 15(a), and 15(b) of the 1940 Act and Rules 6e–2(b)(15) and 6e–3(T)(b)(15) under the 1940 Act.

SUMMARY OF APPLICATION: Applicants seek an order to the extent necessary to permit shares of the Fund to be sold to, and held by, variable annuity and variable life insurance separate accounts of both affiliated and unaffiliated life insurance companies.

FILING DATES: The application was filed on April 12, 1994 and will be amended during the notice period to reflect certain comments of the SEC staff.

HEARING OR NOTIFICATION OF HEARING: An order granting the application will be issued unless the Commission orders a hearing. Interested persons may request a hearing by writing to the Commission's Secretary and serving the Applicants with a copy of the request, personally or by mail. Hearing requests should be received by the Commission by 5:30 p.m. on August 29, 1994, and should be accompanied by proof of service on the Applicants in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of writer's interest, the reason for the request, and the issues contested. Persons who wish to be notified of a hearing may request notification by writing to the Commission's Secretary.

ADDRESSES: Secretary, Securities and Exchange Commission, 450 Fifth Street, NW., Washington, DC 20549. Applicants, c/o Robert Vegliante, Esq., 140 Garden Street, Mail Stop 326, Hartford, Connecticut 06154.

FOR FURTHER INFORMATION CONTACT: C. Christopher Sprague, Senior Counsel, at (202) 942–0670, or Michael V. Wible, Special Counsel, at (202) 942–0670, Office of Insurance Products, Division of Investment Management.

SUPPLEMENTARY INFORMATION: The following is a summary of the application; the complete application is available for a fee from the Commission's Public Reference Branch.

Applicants' Representations

1. The Fund is a Maryland corporation registered under the 1940 Act as an open-end, diversified management investment company. G.R. Phelps is the investment adviser for the Fund. The Fund currently consists of six separate portfolios, (individually a "Portfolio" and collectively, the "Portfolios"): The Money Market Portfolio, the Government Securities Portfolio, the Income Portfolio, the Total Return Portfolio, the Growth Portfolio, and the International Equity Portfolio. Each Portfolio has its own investment objective, or objectives, and policies. Presently, shares of the Fund are sold to Connecticut Mutual Life Insurance Company ("CML") to be credited, as appropriate, to its Panorama Separate Account, CML Variable Annuity Account A, CML Variable Annuity Account B, and CML Accumulation Annuity Account E. Each of these separate accounts established by CML funds benefits under variable annuity contracts issued by CML. Shares of the Fund are also sold to C.M. Life Insurance Company ("C.M. Life"), a wholly-owned subsidiary of CML, to be credited to its Panorama Plus Separate Account to fund benefits under variable annuity contracts issued by C.M. Life.

2. Shares of the Fund, may, in the future, be sold to other separate accounts established by CML or C.M. Life or to other issuers of variable annuity or variable life insurance contracts. Specifically, the Fund intends to offer its shares to separate accounts of any interested insurance company, including insurance companies unaffiliated with CML, in order to fund variable annuity contracts, single premium variable life insurance contracts, scheduled premium variable life insurance contracts, and/or flexible premium variable life insurance contracts (referred to collectively as "variable contracts"). Such Participating Insurance Companies will establish their own Separate Accounts and will design their own variable contracts.

It is anticipated that Participating Insurance Companies will rely on Rules 6e–2 or 6e–3(T) under the 1940 Act with respect to their scheduled premium variable life insurance contracts, respectively, although some Participating Insurance Companies also may rely on individual exemptive orders. The use of a common management investment company as the underlying investment medium for both variable annuity and variable life insurance separate accounts is referred to herein as "mixed funding." The use of a common management investment company as the underlying investment medium for separate accounts of unaffiliated insurance companies is referred to herein as "shared funding." Applicants request an order of the Commission exempting the Participating Insurance Companies and their Separate Accounts (and, to the extent necessary, any principal underwriter and depositor of such an Account) from Sections 9(a), 13(a), 15(a), and 15(b) of the 1940 Act, and Rules 6e–2(b)(15) and 6e–3(T)(B)(15) under the 1940 Act, to the extent necessary to permit mixed and shared funding.

Applicants' Legal Analysis

1. Rule 6e–2(b)(15) provides the exemptions from Sections 9(a), 13(a), 15(a), and 15(b) of the 1940 Act that are discussed below only if the separate account is organized as a unit investment trust, all the assets of which consist of the shares of one or more registered management investment companies which offer their shares exclusively to variable life insurance separate accounts of the life insurer or of any affiliated life insurer. Thus, those exemptions under Rule 6e–2 are not available if a separate account invests in a fund engaged in mixed and/or shared funding. Rule 6e–3(T)(b)(15) provides similar exemptions, but only if the separate account is organized as a unit investment trust, all the assets of which consist of the shares of one or more registered management investment companies which offer their shares exclusively to separate accounts of the life insurer, or of any affiliated life insurance company, offering either scheduled premium variable life insurance contracts or flexible premium variable life insurance contracts, or both; or which also offer their shares to variable annuity separate accounts of the life insurer or of an affiliated life insurance company, or which offer their shares to any such life insurance company in consideration solely for advances made by the life insurer in connection with the operation of the separate account. Thus, the exemptions set out in Rule 6e–3(T)(b)(15) are available if the underlying fund is engaged in mixed funding, but are not available if the fund is engaged in shared funding.

2. Section 9(a) of the 1940 Act provides, among other things, that it is unlawful for any company to serve as investment adviser or principal underwriter of any registered open-end investment company if an affiliated person of that company is subject to a disqualification enumerated in Sections 9(a)(1) or (2) of the 1940 Act. Rules 6e–

2(b)(15)(i) and (ii) and Rules 6e–3(T)(b)(15)(i) and (ii) under the 1940 Act provide exemptions from Section 9(a) under certain circumstances, subject to the limitations on mixed and shared funding imposed by the 1940 Act and the rules thereunder. These exemptions limit the application of the eligibility restrictions to affiliated individuals or companies that directly participate in the management of the underlying management company. Rules 6e–2(b)(15)(iii) and 6e–3(T)(b)(15)(iii) each provide a partial exemption from Sections 13(a), 15(a), and 15(b) of the 1940 Act to the extent those sections have been deemed by the Commission to require "pass-through" voting with respect to an underlying fund's shares.

3. Applicants state that the partial relief granted in Rules 6e–2(b)(15) and 6e–3(T)(b)(15) from the requirements of Section 9 of the 1940 Act, in effect, limits the amount of monitoring necessary to ensure compliance with Section 9 to that which is appropriate in light of the policy and purposes of Section 9. Applicants states that those 1940 Act Rules recognize that it is not necessary for the protection of investors or the purposes fairly intended by the policy and provisions of the 1940 Act to apply the provisions of Section 9(a) to the many individuals in a large insurance company complex, most of whom will have no involvement in matters pertaining to investment companies in that organization. Applicants state that it is unnecessary to apply Section 9(a) to individuals in various unaffiliated Participating Insurance Companies (or affiliated companies of Participating Insurance Companies) that may utilize the Fund as the funding medium for variable contracts. According to Applicants, there is no regulatory purpose in extending the Section 9(a) monitoring requirements because of mixed or shared funding. The Participating Insurance Companies are not expected to pay any role in the management or administration of the Fund. Moreover, those individuals who participate in the management or administration of the Fund will remain the same regardless of which Separate Accounts or insurance companies use the Fund. Applicants argue that applying the monitoring requirements of Section 9(a) because of investment by other insurers' Separate Accounts would be unjustified and would not serve any regulatory purpose. Further, the increased monitoring costs would reduce the net rates of return realized by contractowners.

4. Rules 6e–2(b)(15)(iii) and 6e–3(T)(b)(15)(iii) under the 1940 Act assume the existence of a pass-through voting requirement with respect to management investment company shares held by a separate account. The Application states that pass-through voting privileges will be provided with respect to all variable contractowners so long as the Commission interprets the 1940 Act to require pass-through voting privileges for variable contractowners. Rules 6e–2(b)(15)(iii) and 6e–3(T)(b)(15)(iii) under the 1940 Act provide exemptions from the pass-through voting requirement with respect to several significant matters, assuming the limitations on mixed and shared funding imposed by the 1940 Act and the rules thereunder are observed.

5. Rules 6e–2(b)(15) and 6e–3(T)(b)(15) under the 1940 Act give the Participating Insurance Companies the right to disregard voting instructions of contract holders. Rules 6e–2(b)(15)(iii)(A) 6e–3(T)(b)(15)(iii)(A)(*1*) each provide that the insurance company may disregard the voting instructions of its contractowners with respect to the investments of an underlying fund, or any contract between a fund and its investment adviser, when required to do so by an insurance regulatory authority (subject to the provisions of paragraphs (b)(5)(i) and (b)(7)(ii)(A) of Rules 6e–2 and 6e–3(T) under the 1940 Act). Rules 6e–2(b)(15)(iii)(B) and 6e–3(T)(b)(15)(iii)(A)(*2*) each provide that the insurance company may disregard voting instructions of contractowners if the contractowners initiate any change in the underlying investment company's investment policies, principal underwriter, or any investment adviser (subject to the provisions of paragraphs (b)(5)(ii), (b)(7)(ii)(B), and (b)(7)(ii)(C) of Rules 6e–2 and 6e–3(T) under the 1940 Act). Applicants represent that these rights do not raise any issues different from those raised by the authority of state insurance administrators over separate accounts. Under Rules 6e–2(b)(15) and 6e–3(T)(b)(15), an insurer can disregard contractowner voting instructions only with respect to certain specified items. Applicants also note that the potential for disagreement among Participating Separate Accounts is limited by the requirements in Rules 6e–2 and 6e–3(T) that the participating insurance company's disregard of voting instructions be reasonable and based on specific good faith determinations.

6. The Application states that making the Fund available for mixed and shared funding will encourage more insurance companies to offer variable contracts, and that this should result in increased competition with respect to both variable contract design and pricing, which can be expected to result in more product variation and lower charges. Applicants believe that mixed and shared funding should provide several benefits to variable contractowners. Mixed and shared funding would eliminate a significant portion of the costs of establishing and administering separate funds. Mixed and shared funding also would provide the Fund with a larger pool of funds, thereby promoting economies of scale and permitting increased safety through greater diversification.

7. Applicants see no significant legal impediment to permitting mixed and shared funding. Separate accounts organized as unit investment trusts historically have been employed to accumulate shares of mutual funds which have not been affiliated with the depositor or sponsor of the separate account. Applicants do not believe that mixed and shared funding will have any adverse Federal income tax consequences.

Applicants' Conditions

If the requested order is granted, Applicants consent to the following conditions:

1. A majority of the Board of Directors of the Fund (the "Board") shall consist of persons who are not "interested persons" of the Fund, as defined by Section 2(a)(19) of the 1940 Act, and the rules thereunder, and as modified by any applicable orders of the Commission, except that if this condition is not met by reason of the death, disqualification, or bona-fide resignation of any director or directors, then the operation of this condition shall be suspended: (a) For a period of 45 days if the vacancy or vacancies may be filled by the Board; (b) for a period of 60 days if a vote of shareholders is required to fill the vacancy or vacancies; or (c) for such longer period as the Commission may prescribe by order upon Application.

2. The Board will monitor the Fund for the existence of any material irreconcilable conflict between the interests of the contractowners of all Separate Accounts investing in the Fund. A material irreconcilable conflict may arise for a variety of reasons, including: (a) An action by any state insurance regulatory authority; (b) a change in applicable Federal or state insurance, tax, or securities laws or regulations, or a public ruling, private letter ruling, no-action or interpretative letter, or any similar action by insurance, tax, or securities regulatory authorities; (c) an administrative or judicial decision in any relevant proceeding; (d) the manner in which the investments of any series are being

managed; (e) a difference in voting instructions given by variable annuity contractowners and variable life insurance contractowners; or (f) a decision by an insurer to disregard the voting instructions of contractowners.

3. Participating Insurance Companies and G.R. Phelps will report any potential or existing conflicts to the Board. Participating Insurance Companies and G.R. Phelps will be responsible for assisting the Board in carrying out the Board's responsibilities under these conditions by providing the Board with all information reasonably necessary for the Board to consider any issues raised. This includes, but is not limited to, an obligation by each Participating Insurance Company to inform the Board whenever contractowner voting instructions are disregarded. The responsibility to report such information and conflicts to and to assist the Board will be a contractual obligation of all insurers investing in the Fund under their agreements governing participation in the Fund and these responsibilities will be carried out with a view only to the interests of the contractowners.

4. If it is determined by a majority of the Board, or a majority of the disinterested directors of the Board, that a material irreconcilable conflict exists, then the relevant insurance companies, at their expense and to the extent reasonably practicable (as determined by a majority of the disinterested directors), shall take whatever steps are necessary to remedy or eliminate the material irreconcilable conflict, up to and including: (a) Withdrawing the assets allocable to some or all of the Separate Accounts from the Fund or any Portfolio and reinvesting such assets in a different investment medium, including another Portfolio of the Fund, or submitting the question as to whether such segregation should be implemented to a vote of all affected contractowners and, as appropriate, segregating the assets of any appropriate group (*i.e.*, annuity contractowners or life insurance contractowners of one or more Participating Insurance Companies) that votes in favor of such segregation, or offering to the affected contractowners the option of making such a change; and (b) establishing a new registered management investment company or managed separate account. If a material irreconcilable conflict arises because of a decision by a Participating Insurance Company to disregard contractowner voting instructions, and that decision represents a minority position or would preclude a majority vote, then the insurer may be required, at the Fund's election, to withdraw the insurer's Separate Account's investment in the Fund and no charge or penalty will be imposed as a result of such withdrawal. The responsibility to take remedial action in the event of a Board determination of a material irreconcilable conflict and to bear the cost of such remedial action shall be a contractual obligation of all Participating Insurance Companies under their agreements governing participation in the Fund and these responsibilities will be carried out with a view only to the interests of contractowners.

For purposes of this Condition 4, a majority of the disinterested members of the Board shall determine whether or not any proposed action adequately remedies any material irreconcilable conflict, but, in no event, will the Fund or G.R. Phelps be required to establish a new funding medium for any variable contract. No Participating Insurance Company shall be required by this Condition 4 to establish a new funding medium for any variable contract if any offer to do so has been declined by vote of a majority of the contractowners materially adversely affected by the material irreconcilable conflict.

5. The Board's determination of the existence of a material irreconcilable conflict and its implications shall be made known in writing promptly to all Participating Insurance Companies.

6. Participating Insurance Companies will provide pass-through voting privileges to all variable contractowners so long as the Commission continues to interpret the 1940 Act as requiring pass-through voting privileges for variable contractowners. Accordingly, Participating Insurance Companies will vote shares of the Fund held in their Separate Accounts in a manner consistent with voting instructions timely-received from contractowners. Each Participating Insurance Company will vote shares of the Fund held in the Participating Insurance Company's Separate Accounts for which no voting instructions from contractowners are timely-received, as well as shares of the Fund which the Participating Insurance Company itself owns, in the same proportion as those shares of the Fund for which voting instructions from contractowners are timely-received. Participating Insurance Companies shall be responsible for assuring that each of their Separate Accounts participating in the Fund calculates voting privileges in a manner consistent with other Participating Insurance Companies. The obligation to calculate voting privileges in a manner consistent with all other Separate Accounts investing in the Fund shall be a contractual obligation of all Participating Insurance Companies under their agreements governing participation in the Fund.

7. The Fund will comply with all provisions of the 1940 Act requiring voting by shareholders, and, in particular, the Fund will either provide for annual meetings (except to the extent that the Commission may interpret Section 16 of the 1940 Act not to require such meetings) or comply with Section 16(c) of the 1940 Act (although the Fund is not one of the trusts described in Section 16(c) of the 1940 Act), as well as with Section 16(a) of the 1940 Act and, if and when applicable, Section 16(b) of the 1940 Act. Further, the Fund will act in accordance with the Commission's interpretation of the requirements of Section 16(a) with respect to periodic elections of directors and with whatever rules the Commission may promulgate with respect thereto.[1]

8. The Fund shall disclose in its prospectus that (a) the Fund is intended to be a funding vehicle for all types of variable annuity and variable life insurance contracts offered by various insurance companies, (b) material irreconcilable conflicts possibly may arise, and (c) the Fund's Board of Directors will monitor events in order to identify the existence of any material irreconcilable conflicts and to determine what action, if any, should be taken in response to any such conflict. The Fund will notify all Participating Insurance Companies that Separate Account prospectus disclosure regarding potential risks of mixed and shared funding may be appropriate.

9. If and to the extent that Rule 6e–2 and Rule 6e–3(T) under the 1940 Act as amended, or Rule 6e–3 under the 1940 Act is adopted, to provide exemptive relief from any provision of the 1940 Act, or the rules promulgated thereunder, with respect to mixed or shared funding, on terms and conditions materially different from any exemptions granted in the order requested in this Application, then the Fund and/or Participating Insurance Companies, as appropriate, shall take such steps as may be necessary to comply with Rules 6e–2 and 6e–3(T), or Rule 6e–3, as such rules are applicable.

10. The Participating Insurance Companies and/or G.R. Phelps, at least annually, shall submit to the Fund's Board of Directors such reports, materials, or data as the Board reasonably may request so that the directors of the Fund may fully carry

[1] Applicants will amend the application during the notice period to reflect this condition.

out the obligations imposed upon the Board by the conditions contained in this Application and said reports, materials, and data shall be submitted more frequently if deemed appropriate by the Board. The obligations of the Participating Insurance Companies to provide these reports, materials, and data to the Fund's Board of Directors, when the Board so reasonably requests, shall be a contractual obligation of all Participating Insurance Companies under their agreements governing participation in the Fund.

11. All reports of potential or existing conflicts received by the Board of Directors, and all Board action with regard to determining the existence of a conflict, notifying Participating Insurance Companies of a conflict, and determining whether any proposed action adequately remedies a conflict, will be properly recorded in the minutes of the Board or other appropriate records, and such minutes or other records shall be made available to the Commission upon request.

Applicants' Conclusion

For the reasons stated above, Applicants believe that the requested exemptions, in accordance with the standards of Section 6(c) under the 1940 Act, are appropriate in the public interest and consistent with the protection of investors and the purposes fairly intended by the policy and provisions of the 1940 Act.

For the Commission, by the Division of Investment Management, under delegated authority.

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94–19446 Filed 8–9–94; 8:45 am]

BILLING CODE 8010–01–M

[Rel. No. IC–20441; 812–8894]

John Hancock Variable Life Insurance Company, et al.

August 4, 1994.

AGENCY: Securities and Exchange Commission (the "SEC" or the "Commission").

ACTION: Notice of Application for an order under the Investment Company Act of 1940 (the "1940 Act").

APPLICANTS: John Hancock Variable Life Insurance Company ("JHVLICO"); John Hancock Variable Life Account U ("Account U"); John Hancock Mutual Life Insurance Company ("John Hancock"); and John Hancock Mutual Variable Life Insurance Account UV ("Account UV"). (JHVLICO, Account U, John Hancock, and Account UV shall be referred to collectively as the "Applicants.")

RELEVANT 1940 ACT SECTIONS AND RULES: Order requested under Section 6(c) of the 1940 Act for exemptions from Section 27(a)(3) thereof and Rules 6e–3(T)(b)(13)(ii) and (d)(1) thereunder.

SUMMARY OF APPLICATION: The Applicants seek an order permitting them to offer and sell certain variable life insurance policies that provide for the following: (i) a sales charge structure in which no sales charge is deducted from premiums in excess of the policy's target premium in any year, and a sales charge is deducted from subsequent target premium payments; (ii) a non-guaranteed waiver of a portion of any sales charge otherwise deductible from premiums where the policy has a current sum insured of $250,000 or higher; (iii) the exclusion from any contingent deferred sales charge of premiums paid in excess of one year's base policy target premium in any of the first three policy years; and (iv) a partial waiver of the otherwise applicable contingent deferred sales charge in the case of a policy surrender during the second policy year.

FILING DATE: March 18, 1994.

HEARING OR NOTIFICATION OF HEARING: An order granting the Application will be granted unless the Commission orders a hearing. Interested persons may request a hearing by writing the Secretary of the Commission, and serving the Applicants with copies of the request, personally or by mail. Hearing requests should be received by the Commission by 5:30 p.m., on August 29, 1994, and should be accompanied by proof of service on the Applicants in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of the writer's interest, the reason for the request, and the issues contested. Persons may request notification of a hearing by writing to the Secretary of the Commission.

ADDRESSES: Secretary, SEC, 450 Fifth Street, N.W., Washington, D.C. 20549. Applicants, John Hancock Place, Boston, MA 02117.

FOR FURTHER INFORMATION CONTACT: Patrice M. Pitts, Attorney, or Michael V. Wible, Special Counsel, Division of Investment Management, Office of Insurance Products, at (202) 942–0670.

SUPPLEMENTARY INFORMATION: Following is a summary of the Application. The complete Application is available for a fee from the Commission's Public Reference Branch.

Applicant's Representations

1. JHVLICO, a wholly-owned subsidiary of John Hancock, is a stock life insurance company chartered under the laws of Massachusetts in 1979. Account U, which is registered under the 1940 Act as a unit investment trust, is a separate investment account of JHVLICO. Account U funds scheduled premium variable life insurance policies and single premium variable life insurance policies issued by JHVLICO in reliance on Rule 6e–2 of the 1940 Act. JHVLICO and its Account U also intend to issue certain flexible premium variable life insurance policies (the "Account U Policies"), in reliance on Rule 6e–3(T) under the 1940 Act.

2. John Hancock is a mutual life insurance company chartered under the laws of Massachusetts in 1862. Account UV, which is registered under the 1940 Act as a unit investment trust, is a separate investment account of John Hancock. Account UV funds: (i) Flexible premium variable life insurance policies based on the joint lives of two insureds, issued by John Hancock in reliance on Rule 6e–3(T); and (ii) scheduled premium, annual premium and single premium policies issued by John Hancock in reliance on Rule 6e–2 under the 1940 Act. John Hancock and its Account UV intend to issue certain flexible premium variable life insurance policies (the "Account UV Policies), in reliance on Rule 6e–3(T) under the 1940 Act. (The Account U Policies and the Account UV Policies are substantially identical and are referred to herein collectively as the "Policies." [1])

3. John Hancock is a registered under the Securities Exchange Act of 1934 as a broker-dealer, and is the principal underwriter for Account U, Account UV and the Policies.

4. Like other variable life insurance policies issued in reliance on Rule 6e–3(T), the Policies provide for premium flexibility, together with a death benefit and a surrender value that may increase or decrease daily depending, in part, on the investment performance of an underlying mutual fund.

5. Each year, as specified in the Policy, John Hancock and JHVLICO (collectively, the "Companies") will deduct from each premium payment a charge equal to 4% of premiums paid in such year up to one "target premium", to cover sales expenses. No sales charge will be deducted from premiums paid in excess of one target premium in any Policy year. The Companies intend to

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[1] The Applicants have obtained exemptive relief from the Commission to the extent necessary to permit Account U and Account UV to support variable life insurance policies issued in reliance on both Rules 6e–2 and 6e–3(T) under the 1940 Act. Investment Company Act Release Nos. 19898 (Nov. 24, 1993)(order), and 19817 (Oct. 27, 1993)(notice), File No. 812–8446.

make this deduction only in the first ten Policy years, but the Companies reserve the right to deduct this charge for a longer period.

6. For Policies having a current sum insured (*i.e.*, face amount) of at least $250,000, the Companies will waive one-half of any sales charge that otherwise would be deducted from premium payments. The continuation of this waiver is not guaranteed, and the Companies may withdraw it at any time.

7. The Companies will deduct a contingent deferred sales charge ("CDSC") only if a Policy is surrendered in full or stays in default past its grace period. This charge is computed as a percentage of base Policy target premiums (target premiums less any component thereof that is attributable to additional rider benefits), according to the following schedule:

For surrenders or lapses effective during	Maximum contingent deferred sales charge
Policy year 1	26% of premiums received in Policy year 1 up to 1 base Policy target premium.[2]
Policy year 2	26% of premiums received in Policy years 1 and 2 up to 1 base Policy target premium in each year.
Policy years 3–7	26% of premiums received in Policy years 1, 2 and 3 up to 1 base Policy target premium in each year.
Policy year 8	83.33% of the maximum CDSC for Policy year 7.
Policy year 9	66.66% of the maximum CDSC for Policy year 7.
Policy year 10	50% of the maximum CDSC for Policy year 7.
Policy year 11	33.33% of the maximum CDSC for Policy year 7.
Policy year 12	16.67% of the maximum CDSC for Policy year 7.
Policy years 13 and later	0.

8. The Applicants represent that the base Policy target premium for a Policy will never exceed the Policy's "guideline annual premium" as defined in Rule 6e–3(T)(c)(8).

9. The Companies also will deduct from each premium payment a charge, currently equal to 1.25% of each premium payment, to cover the estimated cost of the federal income tax treatment of the Policies' deferred acquisition costs—commonly referred to as the "DAC tax."[3] This DAC tax charge may be increased, for Policies not yet issued, to correspond with changes in the federal income tax treatment of the Policies' deferred acquisition costs.

10. Certain other charges and deductions are made, including a state premium tax charge, an administrative surrender charge, an issue charge, a maintenance charge, an insurance charge, a charge for mortality and expense risks, a charge for any extra mortality risks, a charge for any optional rider benefits and a charge for partial withdrawals. The Companies also reserve the right to impose a charge for taxes other than the DAC tax charge, if such taxes are incurred in the future.

11. The Applicants represent that, except to the extent that exemptive relief has been obtained from the Commission pursuant to this or any other applicable exemptive application, all charges under the Policies will comply with all of the applicable limitations, terms, conditions and requirements of the 1940 Act and the rules promulgated thereunder. To the extent permitted by the 1940 Act and the rules thereunder, the sales and administrative charges under the Policies may be reduced in the case of sales to a class of associated individuals or to a trustee, employer, or similar entity where the Companies anticipate that the sales to members of the class will result in lower than normal sales or administrative expenses.

Applicants' Legal Analysis

1. Section 27(a)(3) of the 1940 Act generally provides that the amount of sales charge deducted from any of the first twelve monthly payments on a periodic payment plan certificate may not exceed proportionately the amount deducted from any other such payment, and that the amount deducted from any subsequent payment may not exceed proportionately the amount deducted from any other subsequent payment.

2. With limited exceptions, Rule 6e–3(T)(b)(13)(ii) grants an exemption from Section 27(a)(3), provided that the proportionate amount of sales charge deducted from any payment during the contract period does not exceed the proportionate amount deducted from any prior payment.

3. With respect to sales charges deducted from other than premiums, Rule 6e–3(T)(d)(1) provides in pertinent part, and with limited exceptions, that Rule 6e–3(T)(b)(13)(ii) shall be deemed to be satisfied if the amount of sales load deducted pursuant to any method permitted under Rule 6e–3(T)(d) does not exceed the proportionate amount of sales load deducted prior thereto pursuant to the same method.

A. Front-End Sales Charge Limitation

1. The Companies will not impose the 4% front-end sales charge upon the amount of any premium payments received in any Policy year that is in excess of the target premium for that year. Consequently, the front-end sales charge may apply to some premium payments and not to others. The Applicants request an exemption from Section 27(a)(3) and Rules 6e–3(T)(b)(13)(ii) and (d)(1) (also referred to herein collectively as the "stair-step provisions") to the extent necessary to permit this sales charge structure.

2. The Applicants represent that the sales charge deducted from the first target premium paid under a Policy in any Policy year, as compared with the absence of such a charge deducted from premiums in excess thereof, in part reflects the fact that lower overall distribution costs (*e.g.*, commissions paid to sales persons) are incurred in connection with such excess premiums over the life of the Policies. To deduct a sales charge from the excess premiums would generate more revenue than either Company believes is necessary to adequately defray such expenses. The Applicants submit that the structure of the front-end sales load under the Policies provides a significant benefit to Policy owners by passing through to them lower distribution costs with respect to excess premiums.[4] The

[2] The amount of the CDSC is calculated on the basis of the base Policy target premium for the age of the insured at the time of issue of the Policy.

[3] The Applicants have obtained exemptive relief from the Commission to the extent necessary to permit the deduction of DAC tax charges. Investment Company Act Release Nos. 19898 (Nov. 24, 1993)(order), and 19817 (Oct. 27, 1993)(notice), File No. 812–8446.

[4] The Applicants submit that the flexibility in the timing and amount of premium payments afforded Policy owners are desirable features. The Applicants also note that, subject to the other exemptive relief requested in the application, the Policies would continue to comply with all of the other sales charge limitations and requirements in Rule 6e–3(T), even if the front-end sales charge were deducted from all premium payments. Such a front-end charge structure, however, also would

Continued

Applicants further submit that it would not be in the interest of Policy owners to require the deduction from excess premiums of a sales charge that is higher than the Applicants deem necessary.

3. In addition, the Applicants represent that the proposed sales load structure would not deduct large amounts of front-end sales charges so early in the life of the Policy that an investor redeeming in the early periods would recoup little of his or her investment, a perceived abuse of periodic plan certificates identified by Commission staff in past no-action letters.[5]

4. The Applicants represent that the sales charge structure under the Policies is relatively straightforward and easily understood, as compared with that of many other variable life insurance policies that are currently being offered. The Applicants further represent that owners of Policies will benefit from the sales charge structure of the Policies, and that the prospectuses for the Policies will contain disclosure informing owners how to minimize sales charge deductions from premiums paid.

5. The Applicants submit that the Commission has indicated that the policies underlying the "stair-step" requirement in Rule 6e–3(T) would not be contravened by fluctuations in sales load which result from factors beyond the control of Policy issuers (such as the Companies),[6] and that this principle is equally applicable in the present circumstance.

B. Front-End Sales Charge Reduction for Large Policies

1. Each Company will waive a portion of any sales charge that otherwise would be deducted from premiums paid on a Policy with a current sum insured of at least $250,000. The continuation of this waiver is not contractually guaranteed, and the waiver may be withdrawn or modified by each Company at any time.

2. Under certain circumstances, the Policy owner may take action that results in a Policy's sum insured being reduced after issue. For example, under certain of the available death benefit options, a partial withdrawal of the Policy's cash surrender value reduces the sum insured on a dollar-for-dollar basis. Because the waiver of a portion of the front-end sales charge applies only when the current sum insured is at least $250,000, and because the waiver is not guaranteed, it is possible that the reduction could apply at some times with respect to a given Policy and not at subsequent times with respect to the same Policy. The Applicants request an exemption from Section 27(a)(3) and Rules 6e–3(T) (b)(13)(ii) and (d)(1) to the extent necessary to permit this sales charge structure.

3. The Applicants submit that reduction of these charges will not unduly complicate the sales charge structure, and represent that the operation of the sales charge reduction will be fully disclosed in the prospectuses pertaining to the Policies. The Applicants submit that the reduction will clearly be of benefit to those Policy owners to whom it applies.

C. CDSC Structure

1. The maximum CDSC under the Policies is 26% of premiums paid in each of the first three Policy years that are not in excess of one base Policy target premium. Premiums paid in excess of one year's base Policy target premium in any of the first three Policy years are not subject to any CDSC. Thus, the CDSC may apply to some premium payments made during the first three Policy years, but not to others. This could be interpreted to be prohibited by Section 27(a)(3) and Rules 6e–3(T) (b)(13)(ii) and (d)(1).

2. The Applicants represent that they could have structured their 26% CDSC to apply to all premiums up to three base Policy target premiums, regardless of when paid. The Applicants further represent that although that structure would comply with all provisions of the 1940 Act and the rules promulgated thereunder (subject only to the other exemptive relief requested herein), it would result in a higher CDSC for Policy owners who pay excess premiums in at least one of the first three Policy years, or who pay a total of less than three base Policy target premiums during the first three Policy years. The Applicants submit that the CDSC structure under the Policies is more favorable to purchasers than would be the case if, as generally contemplated by Rule 6e–3(T), the amount of sales charge with respect to any premium payments did not depend on the year in which such payments were made.

3. The Applicants represent that the CDSC with respect to the first base Policy target premium in each of the first three Policy years, as compared with the absence of such a charge with respect to any premiums in excess thereof paid during those first three years, in part reflects the fact that lower overall distribution costs (*e.g.*, commissions paid to sales persons) are incurred in connection with such excess premiums. The Applicants submit that to impose a CDSC upon such excess premiums paid during any of the first three Policy years would generate more revenues than either Company believes is necessary to adequately defray such expenses.

4. The Applicants submit that all of the arguments set forth above concerning the inapplicability of the front-end sales charge to premiums paid in excess of specified amounts during any Policy year equally support the inapplicability of the CDSC to premiums paid in excess of one base Policy target premium during any of the first three Policy years. The Applicants submit that Policy owners will benefit from the sales charge structure, and represent that the prospectuses for the Policies will contain disclosure informing owners how to minimize the amount of CDSC with respect to the premiums they pay.

5. If a Policy were surrendered during the second Policy year, the maximum total sales charge (including both the 4% front-end charge and the 26% CDSC) would be 60% of base Policy target premiums paid to date. Imposition of the full CDSC in such a case could cause the total sales charges to exceed the amount permitted by Rule 6e(3)(T)(b)(13)(v)(A), as applied pursuant to Rule 6e–3(T)(d)(1)(i)—*i.e.*, 40% of the first two guideline annual premiums paid under a Policy.

6. To ensure compliance with the "refund" requirements that are, in effect, imposed by Rules 6e–3(T) (b)(13)(ii) and (d)(1) in the event of a surrender during the second Policy year, the Companies will agree in the Policies to waive a portion of the CDSC, equal to 20% of premiums paid in the second Policy year, up to one base Policy target premium.

7. Although this waiver formula has been designed to ensure that no violation of Rule 6e–3(T)(b)(13)(v)(A) will occur, the formula can result in the imposition of a CDSC that is lower than what the rule would permit. To that extent, the expiration of the waiver after the end of the second Policy year could be deemed to cause an increase in the CDSC that would be prohibited under the stair-step provisions.

8. The Applicants represent that the CDSC never increases as a percentage of base Policy target premiums paid in each year, except to the extent that the expiration of the partial waiver of the CDSC after the end of the second Policy year is deemed to cause such an

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clearly be less favorable to Policy owners than that provided under the Policies.

[5] *See, e.g.*, Western Reserve Life Insurance Co. (avail. Aug. 28, 1987); United Investors Life Insurance Co. (avail. July 9, 1987).

[6] Investment Company Act Release No. 15651, at note 139 (Mar. 30, 1987).

increase. The Applicants further represent that the sole purpose of the partial waiver is to implement the sales load refund mandated by Rule 6e–3(T)(B)(13)(v)(A) and (d)(1).

9. The Applicants submit that it would be anomalous if the 1940 Act and the rules promulgated thereunder were to prohibit the expiration of the partial waiver after the end of the second Policy Year—*i.e.*, at the very time when, under the specific terms of Rule 6e–3(T), the Companies' obligations to make the waiver expires. The Applicants further submit that the fact that the waiver formula can result in a lower CDSC than might be permitted under Rule 6e–3(T) is a clear benefit to Policy Owners.

Applicants' Conclusion

Section 6(c) of the 1940 Act provides, in pertinent part, that the Commission, by order upon application, may conditionally or unconditionally exempt any person, security of transaction, or any class or classes of persons, securities or transactions, from any provision of the 1940 Act, if and to the extent that such exemption is necessary or appropriate in the public interest and consistent with the protection of investors and the purposes fairly intended by the policy and provisions of the 1940 Act. For the reasons expressed in this application, the Applicants submit that the requested exemption from Section 27(a)(3) of the 1940 Act and Rules 6e–3(T) (b)(13)(ii) and (d)(1) thereunder meet the standards of Section 6(c) of the 1940 Act.

For the Commission, by the Division of Investment Management, under delegated authority.

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94–19447 Filed 8–9–94; 8:45 am]

BILLING CODE 8010–01–M

[Investment Company Act Release No. 20442; 812–8908]

Lord, Abbett & Co., et al.; Notice of Application

August 4, 1994.

AGENCY: Securities and Exchange Commission ("SEC").

ACTION: Notice of Application for Exemption under the Investment Company Act of 1940 (the "Act").

APPLICANTS: Lord, Abbett & Co. ("Lord Abbett") Affiliated Fund, Inc., Lord Abbett Developing Growth Fund, Inc., Lord Abbett Value Appreciation Fund, Inc., Lord Abbett Fundamental Value Fund, Inc., Lord Abbett Global Fund, Inc., Lord Abbett Bond-Debenture Fund, Inc., Lord Abbett U.S. Government Securities Fund, Inc., Lord Abbett Tax-Free Income Fund, Inc., Lord Abbett California Tax-Free Income Fund, Inc., Lord Abbett Tax-Free Income Trust, Lord Abbett Investment Trust ("Investment Trust"), Lord Abbett U.S. Government Securities Money Market Fund, Inc. ("Money Market Fund"), Lord Abbett Securities Trust ("Securities Trust"), and other existing or future registered open-end management investment companies for whom Lord Abbett or an entity controlling, controlled by, or under common control with Lord Abbett serves as principal underwriter.[1].

RELEVANT ACT SECTIONS: Conditional order requested under section 6(c) for exemption from the provisions of sections 2(a)(32), 2(a)(35), 22(c), and 22(d), and rule 22c–1.

SUMMARY OF APPLICATION: Applicants seek an order to permit the Funds, as defined below, to assess a contingent deferred sales charge ("CDSC") on certain redemptions of shares.

FILING DATE: The application was filed on March 21, 1994, and amended on May 17, 1994, July 29, 1994, and August 3, 1994.

HEARING OR NOTIFICATION OF HEARING: An order granting the application will be issued unless the SEC orders a hearing. Interested persons may request a hearing by writing to the SEC's Secretary and serving applicants with a copy of the request, personally or by mail. Hearing requests should be received by the SEC by 5:30 p.m. on August 29, 1994, and should be accompanied by proof of service on applicants, in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of the writer's interest, the reason for the request, and the issues contested. Persons who wish to be notified of a hearing may request notification by writing to the SEC's Secretary.

ADDRESSES: Secretary, SEC, 450 Fifth Street, N.W., Washington, D.C. 20549. Applicants, 767 Fifth Avenue, New York, New York 10153.

FOR FURTHER INFORMATION CONTACT: James J. Dwyer, Staff Attorney at (202) 942–0581, or C. David Messman, Branch Chief, at (202) 942–0564 (Division of Investment Management, Office of Investment Company Regulation).

SUPPLEMENTARY INFORMATION: The following is a summary of the application. The complete application may be obtained for a fee at the SEC's Public Reference Branch.

Applicant's Representations

1. All of the applicants other than Lord Abbett are registered open-end management investment companies that offer shares in one or more series. The term "Fund" refers to any series of such an applicant that offers shares in multiple series, or to such an applicant that offers shares only in one series. Lord Abbett serves as investment adviser to each Fund, and acts as principal underwriter of the shares of each Fund.

2. Shares of Money Market Fund and the Funds comprising Securities Trust are offered at net asset value. Shares of the other Funds (each an "FESC Fund") are offered to investors at their net asset value plus a front-end sales charge. However, there is no front-end sales charge on reinvestment of dividends and distributions, and sales that involve an investment above $1 million.[2] Also, shares of the FESC Funds and Money Market Fund may be exchanged freely, one for the other, without a sales charge, except on exchanges from Money Market Fund into an FESC Fund when Money Market Fund shares were originally purchased without a sales charge. In addition, shares of the Securities Trust Funds are freely exchangeable with shares of other Securities Trust Funds but are not currently exchangeable for shares of any other Fund.

3. Each applicant has adopted a rule 12b–1 plan (the "Plan"). Although shareholders have approved each Plan, some of the Plans are not yet effective. The Plans of the FESC Funds except Investment Trust provide that, when shares are sold above $1 million, the applicable Fund will pay at the time of sale to Lord Abbett in its capacity as principal underwriter a one-time distribution fee equal to 1% of the net asset value of the shares sold. The Plan of Investment Trust provides that Investment Trust will pay, with respect to sales above $1 million, a one-time distribution fee of 1% of the first $3 million, plus .50% of the next $7 million, plus .25% of the remainder, of the net asset value of shares sold. The

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[1] Certain existing investment companies which currently do not intend to rely on the requested relief are not named as parties to the application, but may in the future rely on any exemption granted pursuant to the application if they determine to impose a contingent deferred sales charge in accordance with the representations and condition in the application.

[2] To reach the $1 million breakpoint, investments in all Funds except Money Market Fund (unless such investment has been exchanged into Money Market Fund from an FESC Fund) are taken into account, as are amounts covered by statements of intention with any FESC Funds.

Plans of all FESC Funds also provide for annual service fees payable by the FESC Fund to Lord Abbett in its capacity as principal underwriter of up to .25% of the average daily net asset value of shares held in broker-dealer accounts.

4. The Plan of Money Market Fund does not impose a rule 12b–1 fee at the time of sale, but provides for payment of an annual rule 12b–1 service fee equal to .15% of the average daily net asset value of shares held in broker-dealer accounts; however, this fee has been suspended. The Plans of the Securities Trust Funds provide that such Funds pay Lord Abbett a distribution fee and service fee of .75% and .25%, respectively, of the net asset value of all shares sold other than in connection with the reinvestment of dividends or other distributions, or the exchange of shares from another Securities Trust Fund. The Plans also provide for annual distribution and service fees, beginning one year after shares are sold, equal to .75% and .25%, respectively, of the average daily net asset value of shares held in broker-dealer accounts.

5. Applicants had been imposing a CDSC in reliance on the no-action position taken by the Division of Investment Management in *Flag Investors Fund, Inc.* ("*Flag*").[3] By letter dated September 22, 1993,[4] the Division withdrew the *Flag* letter, effective March 22, 1994. By letter dated March 31, 1994,[5] the Division advised applicants that it would not recommend enforcement action against the Funds if they temporarily continued to impose a CDSC in reliance of the withdrawn *Flag* position, pending receipt of exemptive relief. Applicants currently are imposing a CDSC in reliance on the letter of March 31, 1994.

6. Under the requested order, a Fund will impose a CDSC of 1% upon the redemptions of shares (a) of an FESC Fund when shares were purchased at or above $1 million and redeemed within 24 months following the month the shares were purchased, or (b) of a Securities Trust Fund when shares are redeemed within 12 months following the month of their purchase. The CDSC is received and retained by the Fund that paid the initial rule 12b–1 fee.

7. In no event does the CDSC exceed 1% of the lesser of the net asset value of the shares redeemed or the original cost of the shares. No CDSC is imposed when the investor redeems shares (a) derived from increases in net asset value per share, (b) where no rule 12b–1 fee was paid on issuance (including shares acquired through reinvestment of dividends and capital gains distributions), or (c) which, together with exchanged shares, have been held continuously for a certain number of months following the month of purchase (24 months with respect to shares of an FESC Fund, and 12 months with respect to shares of a Securities Trust Fund).

8. In determining whether a CDSC is payable, it is assumed that a redemption is made first of shares originally not subject to a CDSC and then of shares subject to a CDSC. With respect to shares subject to a CDSC, it is assumed that the shares held the longest are the first to be redeemed. No CDSC is charged upon exchanges of shares between (a) FESC Funds, (b) an FESC Fund and Money Market Fund, or (c) Securities Trust Funds. If the shares being exchanged are subject to a CDSC, the CDSC and the original acquisition dates carry over to the shares being acquired in the exchange. Applicants will comply with rule 11a–3 under the Act with regard to all exchanges.

9. The Funds may waive the CDSC upon redemptions by tax-qualified plans under section 401 of the Internal Revenue Code due to plan loans, hardship withdrawals, death, retirement, or separation from service with respect to plan participants.

10. Upon their redemption, shares will be subject to the CDSC schedule in effect at the time of their purchase, except that applicants may apply a CDSC schedule that has been changed subject to the purchase of shares if such changes confer a benefit to the shareholder (*e.g.*, lower fees).

Applicants' Legal Analysis

1. Applicants submit that the requested exemption to permit the Funds to implement the proposed CDSC is appropriate, in the public interest, and is consistent with the protection of investors and the purposes fairly intended by the policy and provisions of the Act. The proposed CDSC arrangements will provide shareholders the option of having greater investment dollars working for them from the time of their purchase than if a sales load had been imposed at such time.

2. Applicants believe that the purposed CDSC waiver is fair, equitable, and in the public interest and the interest of shareholders because the redeeming shareholders are members of a class favored under federal tax and securities laws.

Applicants' Condition

If the requested order is granted, applicants expressly agree to the following condition: Applicants will comply with proposed rule 6c–10 under the Act, Investment Company Act Release No. 16619 (Nov. 2, 1988), as such rule is currently proposed and as it may be reproposed, adopted, or amended.

For the SEC, by the Division of Investment Management, under delegated authority.

Margaret H. McFarland,

Deputy Secretary.

[FR Doc. 94–19522 Filed 8–9–94; 8:45 am]

BILLING CODE 8010–01–M

[Investment Company Act Rel. No. 20439; 812–8856]

Nuveen Municipal Bond Fund, Inc., et al.; Notice of Application

August 3, 1994.

AGENCY: Securities and Exchange Commission ("SEC").

ACTION: Notice of Application for Exemption under the Investment Company Act of 1940 ("Act").

APPLICANTS: Nuveen Municipal Bond Fund, Inc.; Nuveen Tax-Free Bond Fund, Inc.; Nuveen Insured Tax-Free Bond Fund, Inc.; Nuveen California Tax-Free Fund, Inc.; Nuveen Multistate Tax-Free Trust (collectively, the "Nuveen Funds"); Nuveen Advisory Corp. (the "Adviser"); and John Nuveen & Co. Incorporated (the "Distributor" or "Nuveen"), on their own behalf and on behalf of any other registered open-end management investment companies established or acquired in the future, or any series thereof, for which Nuveen or a company controlling, controlled by, or under common control with Nuveen acts as investment adviser or distributor (collectively, with the Nuveen Funds, the "Funds").

RELEVANT ACT SECTIONS: Exemption requested under section 6(c) from the provisions of sections 2(a)(32), 2(a)(35), 18(f), 18(g), 18(i), 22(c), and 22(d), and rule 22c–1 thereunder.

SUMMARY OF APPLICATION: Applicants seek an order that would permit the Funds to issue an unlimited number of classes of shares representing interests in the same portfolio of securities, assess a contingent deferred sales charge ("CDSC") on certain redemptions of shares, and waive the CDSC in certain instances.

FILING DATE: The application was filed on February 25, 1994, and amended on

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[3] *Flag Investors Fund, Inc.* (pub. avail. Oct. 1, 1984) (stating that the Division would not recommend enforcement action if requestors imposed a 1% "redemption fee" similar in nature to a CDSC).

[4] *Flag Investors Fund, Inc.* (pub. avail. Sept. 22, 1993).

[5] *Lord Abbett Funds* (pub. avail. Mar. 31, 1994).

March 28, 1994, May 16, 1994, and July 8, 1994. Applicants have agreed to file an additional amendment during the notice period. This notice reflects the changes to be made by such additional amendment.

HEARING OR NOTIFICATION OF HEARING: An order granting the application will be issued unless the SEC orders a hearing. Interested persons may request a hearing by writing to the SEC's Secretary and serving applicants with a copy of the request, personally or by mail. Hearing requests should be received by the SEC by 5:30 p.m. on August 29, 1994, and should be accompanied by proof of service on applicants, in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of the writer's interest, the reason for the request, and the issues contested. Persons who wish to be notified of a hearing may request such notification by writing to the SEC's Secretary.

ADDRESSES: Secretary, SEC, 450 Fifth Street, N.W., Washington, D.C. 20549. Applicants: c/o James J. Wesolowski, Vice President and General Counsel, John Nuveen & Co. Incorporated, 333 West Wacker Drive, Chicago, IL 60606.

FOR FURTHER INFORMATION CONTACT: Courtney S. Thornton, Senior Attorney, at (202) 942–0583, or Barry D. Miller, Senior Special Counsel, at (202) 942–0564 (Division of Investment Management, Office of Investment Company Regulation).

SUPPLEMENTARY INFORMATION: The following is a summary of the application. The complete application may be obtained for a fee from the SEC's Public Reference Branch.

Applications' Representations

1. Each of the Nuveen Fund is either a Maryland corporation, a Minnesota corporation, or a Massachusetts business trust, and is requested under the Act as an open-end management investment company. Several of the Nuveen Funds have multiple series, each of which has separate investment objectives and policies, and separate assets. All of the Nuveen Funds currently charge varying front-end sales charges in connection with the purchase of their shares (ranging from 4.75% to .50%, depending on the amount of purchase).

2. The Adviser, a wholly-owned subsidiary of the Distributor, acts as investment adviser for each of the Nuveen Funds. Each of the Nuveen Funds has entered into an investment management contract with the Adviser under which the Adviser provides the fund with investment management and administrative services. The Distributor, a wholly-owned subsidiary of the John Nuveen Company, acts as the principal underwriter of the shares of the Nuveen Funds, and distributes shares directly to the public and through selected broker-dealers.

3. Applicants propose to adopt a multiple class distribution plan (the "Multiple Class Plan") for shares of the Funds. Under the Multiple Class Plan, each Fund initially will offer three classes of shares, which would represent interests in the same portfolio of investments and be identical in all respects, except for sales charges, class designations, the allocation of distribution expenses, service expenses and certain other expenses (as set forth in condition 1 below) applicable to such class ("Class Expenses"), voting rights, exchange privileges, and conversion features. The Multiple Class Plan would be implemented by designating all currently issued and outstanding shares of each Fund as Class R shares, and creating to additional classes of shares of each Fund: Class A shares and Class C shares. The Funds also may offer an additional class of shares designated as Class B.

4. Class R shares will be available for purchase by (a) unitholders of Nuveen-sponsored unit investment trusts ("UITs") who, on or prior to the effective date of the Multiple Class Plan, have purchased such UITs and elected to reinvest distributions from such UITs in shares of a Fund, (b) holders of Class R shares of a Fund who elect to reinvest Fund dividends and capital gain distributions in Class R shares of that Fund, and (c) certain identified categories of investors described from time to time in the Funds' prospectuses, such as employees of the Funds' authorized dealers or members of their immediate families, bank trust departments investing funds in a fiduciary capacity pursuant to investment discretion, and certain specified categories of financial advisers on behalf of their customers. Purchases described in clauses (a) through (c) above will not be subject to any sales charge, distribution fee, or service fee under a Rule 12b–1 Plan or otherwise.

5. Class A shares will be subject to a front-end sales charge and a plan to be adopted pursuant to rule 12b–1 (a "Rule 12b–1 Plan") providing for a service fee at an annual rate of up to .25% of average daily net assets of Class A shares.

6. Class C shares will not be subject to any sales charge, but will be subject to a Rule 12b–1 Plan that will provide for a distribution fee at an annual rate of up to .75%, and a service fee at an annual rate of up to .25% of average daily net asset of Class C shares. Class C shares automatically will convert to Class A shares a specified number of years after purchase, pursuant to the conversion feature described below.

7. The Funds may from time to time create one or more additional classes of shares, the terms of which may differ from the classes of shares described above. These may include classes subject to a CDSC, as well as classes subject to combinations of front-end sales charges, distribution fees and service fees different from those of Class A shares, Class C shares, and Class R shares. A Fund may, for example, offer a class or classes of shares, with or without front-end sales charges, that are subject to a service fee under a service plan substantially identical to a Rule 12b–1 Plan, but not adopted under rule 12b–1 (a "Shareholder Service Plan").

8. The provision of services under a Shareholder Service Plan or Rule 12b–1 Plan (collectively, the "Plans") will augment (and not be duplicative of) the services to be provided to a Fund by its distributor, adviser, transfer agent, custodian, and other providers of recordkeeping services. Applicants will comply with Article III, Section 26, of the Rules of Fair Practice of the NASD regarding asset-based sales charges and service fees. *See* Securities Exchange Act Release No. 30897 (July 7, 1992).

9. A Fund may determine, on a Fund-by-Fund basis, to offer investors a class or classes of shares subject to a CDSC and distribution and service fees under a Rule 12b–1 Plan or a Shareholder Service Plan ("Class B shares"). In the event that a Fund decides to issue Class B shares, such shares would be offered for sale without the imposition of a sales charge at the time of purchase. An investor's proceeds from a redemption of Class B shares made within a specified period after purchase generally would be subject to a CDSC payable to the Distributor. The CDSC typically would be established in an initial amount that could range from 1% to 4% (but could be higher or lower) on shares redeemed during the first year after purchase, and typically would be reduced at a rat of either 1% of .5% per year for each subsequent year of the applicable CDSC period, so that redemptions of shares held after that period would be subject to a CDSC. Redemptions of Class B shares held by identified categories of investors also would not be subject to a CDSC. Class A shares following a specified number of years after purchase.

10. Except as noted below, each class of shares generally may be exchanged only for shares of a class with similar

characteristics in another Fund. Class R shares may be exchanged for Class A shares of a Fund at any time at the option of a Class R shareholder, provided the current net asset value of the shareholder's Class R shares is at least $1,000. Shares of any class of a Fund, including a class with a CDSC feature, may be exchanged for shares of any money market funds sponsored by Nuveen that do not impose a sales charge and may not be subject to a Rule 12b–1 Plan or Shareholder Service Plan ("Money Market Exchange Shares").[1] Additionally, exchanges may be permitted among dissimilar classes at the discretion of the directors of a Fund if a shareholder ceases to be eligible to purchase shares of the original class by reason of a change in the shareholder's status. All exchanges will comply with rule 11a–3 under the Act.

11. Shares of one class (the "Purchase Class") will automatically convert at their net asset value to shares of another class with different features (the "Target Class") after the expiration of a specified period, subject to terms fully disclosed in a Fund's prospectus. This conversion feature will apply to convert Class C shares (and Class B Shares, if issued) to Class A shares, and may apply to convert shares of other classes established in the future to Class A shares. For purposes of the conversion, all Purchase Class shares in a shareholder's Fund account that were acquired through the reinvestment of dividends and other distributions paid in respect of such shares (and which had not yet converted) will be considered to be held in a separate subaccount. Each time any Purchase Class shares in the shareholder's Fund account are converted, an equal proportion of shares then in the subaccount also will convert, and will not longer be considered held in the subaccount.

12. Any conversion of shares will be subject to the continuing availability of an opinion of counsel or a private letter ruling from the Internal Revenue Service to the effect that the conversion of shares would not constitute a taxable event under federal income tax law. Conversion of shares might be suspended if such an opinion or ruling were no longer available.

13. Expenses attributable to a Fund but not to a particular series thereof ("Fund Expenses") will be borne by shareholders of the Fund on the basis of relative aggregate net assets of the Fund without regard to class. In the case of a Fund that has multiple series, Fund Expenses will first be allocated among the series, based on the relative aggregate net assets of such series. Expenses that are attributable to a particular series, but not a particular class thereof would be borne by each class on the basis of the relative aggregate net assets of the classes. Each class will bear the Class Expenses and payments under any rule 12b–1 Plan and/or Shareholder Service Plan ("Plan Payments") applicable to such class.

14. Applicants propose that the Funds be permitted to impose a CDSC on redemptions of Class B shares. The amount of the CDSC and the timing of its imposition may vary. The CDSC will not be imposed on redemptions of Class B shares that were purchased more than a specified period (the "CDSC Period") prior to redemption or on Class B shares derived from reinvestment of distributions. No CDSC will be imposed on an amount that represents an increase in the value of the shareholder's account resulting from capital appreciation above the amount paid for shares purchased during the CDSC Period; such a charge would be imposed, however, on the lesser of the net asset value of the shares redeemed (exclusive of any reinvestment of dividends or distributions) at the time of redemption or the net asset value of such shares at the time of purchase. In determining whether a CDSC is applicable, it will be assumed that a redemption is made first of shares derived from reinvestment of distributions or amounts that represent an increase in the value of the shareholder's account resulting from capital appreciation, second, of shares purchased prior to the CDSC Period, and third, of shares purchased during the CDSC Period. In determining the rate of any applicable CDSC, it will be assumed that a redemption is made of Class B shares of a Fund held for the longest period of time within the CDSC Period. The CDSC schedule will comply, to the extent applicable, with the requirements of section 26(d) of the Rules of Fair Practice of the NASD, as amended from time to time.

15. Applicants intend to waive or reduce the CDSC in certain circumstances. In waiving or reducing a CDSC, the Funds will comply with rule 22d–1 under the Act.

16. If redeemed shares upon which a CDSC was imposed are reinvested in Class B shares of the same Fund or another Fund within the period specified in the Fund's prospectus, Nuveen, as principal underwriter, will credit the shareholder's account with the amount of the CDSC previously imposed. The Class B shares acquired through such reinvestment will continue to be subject to the CDSC; the holding period of Class B shares thus acquired will include the holding period of the redeemed Class B shares.

Applicants' Legal Analysis

1. Applicants request an exemptive order to the extent that the proposed issuance and sale of an unlimited number of classes of shares representing interests in the Funds might be deemed to result in a "senior security" within the meaning of section 18(g) of the Act and thus to be prohibited by section 18(f)(1), and violate the equal voting provisions of section 18(i) of the Act.

2. Section 18 is intended to prevent investment companies from issuing excessive amounts of senior securities and thereby increasing unduly the speculative character of their junior securities, or from operating without adequate assets or reserves. The proposed Multiple Class Plan does not involve borrowings, and does not affect the Funds' existing assets or reserves. In addition, the proposed arrangement will not increase the speculative character of the shares of the Funds, since each class of shares will participate in all of the Funds' appreciation or depreciation (if any), income, and all of a Fund's expenses (with the exception of the Plan Payments and Class Expenses).

3. Applicants believe that the proposed allocation of Class Expenses in the manner described above, and the voting rights relating to the Rule 12b–1 Plans and Shareholder Service Plans are equitable and would not discriminate unfairly against any group of shareholders. Because, with respect to any Fund, the rights and privileges of each class of shares are substantially identical, the possibility that their interests would ever conflict would be remote. In any event, the interests of the affected shareholders with respect to distribution and/or service fees would be adequately protected since the distribution and service plans for each of those classes will conform to the requirements of rule 12b–1 (except that a Shareholder Service Plan may not confer certain voting rights), including the requirement that their implementation and continuance be

[1] For purposes of imposing any applicable CDSC on redemptions of Money Market Exchange Shares (and applying any applicable conversion feature), the period during which the shareholder held the exchanged shares would be counted. A Fund may elect not to count the period during which the shareholder held the Money Market Exchange Shares. In the event that a Fund elected not to count the period during which the shareholder held the Money Market Exchange Shares, the amount of any applicable CDSC would be reduced in accordance with rule 11a–3(b)(5)(i)(A) under the Act by the amount of any Plan payments to which the Money Market Exchange Shares may be subject.

approved on an annual basis by both the full board and the non-interested directors of the respective Funds.

4. Applicants also request an exemption from the provisions of sections 2(a)(32), 2(a)(35), 22(c), and 22(d) of the Act, and rule 22c–1 thereunder to the extent necessary to permit the Funds to offer shares subject to a CDSC. Applicants believe that implementation of the CDSC in the manner and under the circumstances described above would be fair and in the best interests of shareholders of the Funds, and would be appropriate in the public interest, and consistent with the protection of investors and the purposes fairly intended by the policy and provisions of the Act.

Applciants' Conditions

Applicants agree that any order of the SEC granting the requested relief will be subject to the following conditions:

1. Each class of shares will represent interests in the same portfolio of investments of a Fund or a series, and be identical in all respects except as set forth below. The only differences among the classes of shares of the same Fund or series will relate solely to (a) certain Class Expenses, which shall be limited to (i) transfer agent fees attributable to a specific class of shares; (ii) printing and postage expenses related to preparing and distributing materials such as shareholder reports, prospectuses, and proxy statements to current shareholders of a specific class; (iii) SEC and state securities registration fees incurred by a specific class of shares; (iv) the expenses of administrative personnel and services required to support the shareholders of a specific class; (v) litigation or other legal expenses relating to a class of shares; (vi) directors' fees or expenses incurred as a result of issues relating to a specific class of shares; and (vii) accounting expenses relating to a specific class of shares; (b) expenses payable by a class pursuant to a Plan with respect to such class; (c) the fact that the classes will vote separately with respect to the Funds' Rule 12b–1 Plans and Shareholder Service Plans, except as provided in condition 15 below; (d) conversion features; (e) exchange privileges; and (f) class designations. Any other incremental expenses not specifically identified above that are subsequently identified and determined to be properly allocated to one class of shares shall not be so allocated unless and until approved by the SEC pursuant to an amended order.

2. The directors of each of the Funds, including a majority of the independent directors, will have approved the Multiple Class Plan prior to its implementation. The minutes of the meetings of the directors of the Funds regarding the deliberations of the directors concerning, and their approval of, the Multiple Class Plan will reflect in detail the reasons for their determination that the proposed Multiple Class Plan is in the best interests of both the Funds and their respective shareholders.

3. On an ongoing basis, the directors of the Funds, pursuant to their fiduciary responsibilities under the Act and otherwise, will monitor each Fund for the existence of any material conflicts among the interests of the classes of shares. The directors, including a majority of the independent directors, will take such action as is reasonably necessary to eliminate any such conflicts that may develop. The Adviser and the Distributor will be responsible for reporting any potential or existing conflicts to the directors. If a conflict arises, the Adviser or the Distributor, each at its own cost, will remedy such conflict up to and including establishing a new registered management investment company.

4. The Shareholder Service Plans will be adopted and operated in accordance with the procedures set forth in rule 12b–1(b) through (f) as if the expenditures made thereunder were subject to rule 12b–1, except that shareholders need not enjoy the voting rights specified in rule 12b–1.

5. The directors will receive quarterly and annual statements concerning distribution and shareholder servicing expenditures complying with paragraph (b)(3)(ii) of rule 12b–1, as it may be amended from time to time. In the statements, only expenditures properly attributable to the sale or servicing of a particular class of shares will be used to justify any distribution or servicing fee charged to that class. Expenditures not related to the sale or servicing of a particular class will not be presented to the directors to justify any fee attributable to that class. The statements, including the allocations upon which they are based, will be subject to the review and approval of the independent directors in the exercise of their fiduciary duties.

6. Dividends paid by a Fund with respect to each class of its shares, to the extent any dividends are paid, will be calculated in the same manner, at the same time, on the same day, and will be paid in the same amount, except that Plan Payments and any Class Expenses will be borne exclusively by that class.

7. The methodology and procedures for calculating the net asset value and dividends and distributions of the classes of shares and the proper allocation of expenses among the classes have been reviewed by an expert (the "Expert"). The Expert has rendered a report to applicants, filed with this application as Exhibit C, that such methodology and procedures are adequate to ensure that such calculations and allocations will be made in an appropriate manner. On an ongoing basis, the Expert, or an appropriate substitute Expert, will monitor the manner in which the calculations and allocations are being made and, based upon such review, will render at least annually a report to the applicants that the calculations and allocations are being made properly. The reports of the Expert shall be filed as part of the periodic reports filed with the SEC pursuant to sections 30(a) and 30(b)(1) of the Act. The work papers of the Expert with respect to such reports, following a request by the Funds (which the Funds agree to provide), will be available for inspection by the SEC staff, upon the written request for such work papers by a senior member of the Division of Investment Management, limited to the Director, an Associate Director, the Chief Accountant, the Chief Financial Analyst, an Assistant Director, and any Regional Administrators or Associate and Assistant Administrators. The initial report of the Expert is a "report on the policies and procedures placed in operation," and the ongoing reports will be "reports on policies and procedures placed in operation and tests of operating effectiveness" as defined and described in SAS No. 70 of the American Institute of Certified Public Accountants ("AICPA"), as it may be amended from time to time, or in similar auditing standards as may be adopted by the AICPA from time to time.

8. Applicants have adequate facilities in place to ensure implementation of the methodology and procedures for calculating the net asset value and dividends and distributions of the classes of shares and the proper allocation of expenses among the classes of shares, and this representation has been concurred with by the Expert in the initial report referred to in condition 7 above, and will be concurred with by the Expert, or an appropriate substitute Expert, on an ongoing basis at least annually in the ongoing reports referred to in condition 7 above. Applicants agree to take immediate corrective action if this representation is not concurred in by the Expert or appropriate substitute Expert.

9. The prospectus of each Fund will include a statement to the effect that any

person entitled to receive compensation for selling or servicing Fund shares may receive different compensation with respect to one particular class of shares over another in the Fund.

10. Any distributor will adopt compliance standards as to when each class of shares may be sold to particular investors. Applicants will require all persons selling shares of a Fund to agree to conform to such standards.

11. The conditions pursuant to which the exemptive order is granted and the duties and responsibilities of the directors of the Funds with respect to the Multiple Class Plan will be set forth in guidelines, which will be furnished to the directors.

12. Each Fund will disclose the respective expenses, performance data, distribution arrangements, services, fees, sales loads, deferred sales loads, and exchange privileges applicable to each class of shares in every prospectus, regardless of whether all classes of shares are offered through each prospectus. Each Fund will disclose the respective expenses and performance data applicable to all classes of shares in every shareholder report. The shareholder reports will contain, in the statement of assets and liabilities and statement of operations, information related to the Fund as a whole generally, and not on a per class basis. Each Fund's per share data, however, will be prepared on a per class basis with respect to all classes of shares of such Fund. To the extent any advertisement of sales literature describes the expenses or performance data applicable to any class of shares, it will also disclose the respective expenses and/or performance data applicable to all classes of shares. The information provided by applicants for publication in any newspaper or similar listing of the Fund's net asset value and public offering price will present each class of shares separately.

13. The initial determination of Class Expenses that will be applied to a class and any subsequent changes thereto will be reviewed and approved by a vote of the board of directors, including a majority of the independent directors. Any persons authorized to direct the application and disposition of monies paid or payable by a Fund to meet Class Expenses shall provide to the board of directors, and the directors shall review at least quarterly, a written report of the amounts so expended and the purposes for which such expenditures were made.

14. Any class of shares with a conversion feature will convert into another class of shares on the basis of the relative net asset values of the two classes, without the imposition of any sales load, fee, or other charge. After conversion, the converted shares will be subject to an asset-based sales charge and service fee to which they were subject prior to the conversion.

15. If a Fund implements any amendment to a Rule 12b–1 Plan (or, if presented to shareholders, adopts or implements any amendment of a Shareholder Service Plan) that would increase materially the amount that may be borne by the shares of a Target Class under the plan, existing Purchase Class shares will stop converting into the Target Class unless the Purchase Class shareholders, voting separately as a class, approve the proposal. The directors shall take such action as is necessary to ensure that existing Purchase Class shares are exchanged or converted into a new class of shares ("New Target Class") identical in all material respects to the Target Class as it existed prior to implementation of the proposal, no later than the date such shares previously were scheduled to convert into the Target Class. If deemed advisable by the directors to implement the foregoing, such action may include the exchange of all existing Purchase Class shares for a new class ("New Purchase Class"), identical to existing Purchase Class shares in all material respects except that New Purchase Class will convert into New Target Class. New Target Class or New Purchase Class may be formed without further exemptive relief. Exchanges or conversions described in this condition shall be effected in a manner that the directors reasonably believe will not be subject to federal taxation. In accordance with condition 3, any additional cost associated with the creation, exchange, or conversion of New Target Class or New Purchase Class shall be borne solely by the adviser and the distributor. Purchase Class shares sold after the implementation of the proposal may convert into Target Class shares subject to the higher maximum payment, provided that the material features of the Target Class plan and the relationship of such plan to the Purchase Class shares are disclosed in an effective registration statement.

16. Applicants acknowledge that the grant of the exemption requested by the application will not imply SEC approval, authorization, or acquiescence in any particular level of payments that the Funds may make pursuant to Rule 12b-1 Plans or Shareholder Service Plans in reliance on the exemptive order.

17. Applicants will comply with the provisions of rule 6c-10 under the Act, Investment Company Act Release No. 16619 (Nov. 2, 1988), as such rule is currently proposed and as it may be reproposed, adopted, or amended.

For the SEC, by the Division of Investment Management, under delegated authority.

Margaret H. McFarland,

Deputy Secretary

[FR Doc. 94–19448 Filed 8–9–94; 8:45 am]

BILLING CODE 8010–01–M

DEPARTMENT OF STATE

Bureau of Political-Military Affairs

[Public Notice 2049]

Imposition of Chemical and Biological Weapons Proliferation Sanctions Against Foreign Persons

AGENCY: Department of State.

ACTION: Notice.

SUMMARY: The United States Government has determined that two firms and their owner/manager have engaged in chemical weapons proliferation activities that require the imposition of sanctions pursuant to the Arms Export Control Act and the Export Administration Act of 1979, as amended by the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991.

EFFECTIVE DATE: July 16, 1994.

FOR FURTHER INFORMATION CONTACT: Vann H. Van Diepen, Office of Chemical, Biological and Missile Nonproliferation, Bureau of Political-Military Affairs, Department of State (202–647–1142).

SUPPLEMENTARY INFORMATION: Pursuant to Sections 81(a) and 81(b) of the Arms Export Control Act (22 U.S.C. 2798(a), 2798(b)), Sections 11C(a) and 11C(b) of the Export Administration Act of 1979 (50 U.S.C. app. 2410c(a), 2410(b)), Section 305 of the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 (P.L. 102–182), and Executive Order 12851 of June 11, 1993, the United States Government determined that the following foreign persons have engaged in chemical weapons proliferation activities that require the imposition of the sanctions described in Section 81(c) of the Arms Export Control Act (22 U.S.C. 2798(c)) and Section 11C(c) of the Export Administration Act of 1979 (50 U.S.C. app. 2410c(c)):

(1) Mana International Investments

(2) Europol Holding, Ltd.

(3) Nahum Manbar (owner/manager of the two firms named above)

Accordingly, the following sanctions are being imposed:

(A) Procurement Sanction.—The United States Government shall not

procure, or enter into any contract for the procurement of, any goods or services from any of the sanctioned foreign persons; and

(B) Import Sanction.—The importation into the United States of products produced by any of the sanctioned foreign persons shall be prohibited.

These sanctions apply not only to the entities described above, but also to their divisions, subunits, and any successor entities. Sanctions on the individual described above may apply to other firms with which he is associated. Questions as to whether a particular transaction is affected by the sanctions should be referred to the information number listed above. The sanctions shall commence on July 16, 1994. They will remain in place for at least one year and until further notice.

These measures shall be implemented by the responsible agencies as provided in Executive Order 12851 of June 11, 1993.

Dated: August 3, 1994.

Thomas E. McNamara,

Acting Assistant Secretary of State for Political-Military Affairs.

[FR Doc. 94–19546 Filed 8–9–94; 8:45 am]

BILLING CODE 4710-25-M

DEPARTMENT OF TRANSPORTATION

Coast Guard

[CGD 94–059]

Commercial Fishing Industry Vessel Advisory Committee

AGENCY: Coast Guard, DOT.

ACTION: Request for applications.

SUMMARY: The U.S. Coast Guard is seeking additional applicants for appointment to membership on the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC). The Committee is a seventeen member federal advisory committee that advises the Coast Guard on matters related to the safety of commercial fishing vessels.

DATES: Membership applications must be received by October 11, 1994.

ADDRESSES: Persons interested in applying should write to Commandant (G–MVI–4), Room 1405, U.S. Coast Guard Headquarters, 2100 Second St., SW., Washington, DC. 20593–0001.

FOR FURTHER INFORMATION CONTACT: LT Tony Johnson, Assistant to the Executive Director, CFIVAC, Room 1405, U.S. Coast Guard Headquarters, 2100 Second St., S.W., Washington, DC. 20593–0001, (202) 267–6282.

SUPPLEMENTARY INFORMATION: The CFIVAC was established by the Coast Guard as required by the Commercial Fishing Industry Vessel Safety Act of 1988. This notice announces that applications will be considered for six openings. The Coast Guard seeks applications for three members in the category of fishing industry, one member in the category of general public, one member in the category of education and training, and one member in the category of insurance underwriters.

The Committee consists of seventeen members as follows: Ten members from the fishing industry who reflect a regional and representational balance and have experience in the operation of vessels to which chapter 45 of Title 46, United States Code applies, or as a crew member or processing line worker on an uninspected fish processing vessel; one member representing naval architects or marine surveyors; one member representing manufacturers of equipment for vessels to which chapter 45 applies; one member representing education or training professional related to fishing vessel, fish processing vessel, or fish tender vessel safety, or personnel qualifications; one member representing underwriters that insure vessels to which chapter 45 applies, and three members representing the general public, including whenever possible, an independent expert or consultant in maritime safety and a member of a national organization composed of persons representing owners or vessels to which chapter 45 applies. The membership term is three years.

A limited portion of the membership may serve consecutive terms.

Those persons who submitted applications in reply to the May 3, 1993, notice need not reapply.

To achieve the balance of membership required by the Federal Advisory Committee Act, the Coast Guard is especially interested in receiving applications from minorities and women. The members of the Committee serve without compensation from the Federal Government, although travel reimbursement and per diem will be provided. The Committee normally meets in Washington, DC, with working group meetings for specific problems on an as-required basis.

Dated: August 3, 1994.

Joseph J. Angelo,

Acting Chief, Office of Marine Safety Security and Environmental Protection.

[FR Doc. 94–19516 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–14–M

National Highway Traffic Safety Administration

[Docket No. 94–12; Notice 2]

Mercedes-Benz of North America, Inc.; Grant of Petition for Determination of Inconsequential Noncompliance

Mercedes-Benz of North America, Inc. (Mercedes) of Montvale, New Jersey determined that the headlamps on some of its vehicles fail to comply with the lens bonding requirements of 49 CFR 571.108, Motor Vehicle Safety Standard No. 108, "Lamps, Reflective Devices and Associated Equipment," and filed an appropriate report pursuant to 49 CFR Part 573, "Defect and Noncompliance Reports." Mercedes also petitioned to be exempted from the notification and remedy requirements of the National Traffic and Motor Vehicle Safety Act (15 U.S.C. 1381 *et seq.*) (now 49 U.C.C. 30118 and 30120) on the basis that the noncompliance is inconsequential as it relates to motor vehicle safety.

Notice of receipt of the petition was published on February 11, 1994 and an opportunity afforded for comment (59 FR 6674). This notice grants the petition.

Section S4 of Standard No. 108 defines "replaceable bulb headlamp" as one that is comprised of a *bonded* lens and reflector assembly. From August 1991 to December 1993, the petitioner imported approximately 46,000 Mercedes-Benz vehicles for sale in the United States in which the headlamps were not "replaceable bulb headlamps" because their lenses were clipped onto their reflectors as an assembly rather than bonded. These vehicles included approximately 35.925 S-Class, 7,379 E-Class, and 2,632 C-Class models. In addition, approximately 1,873 noncompliant replacement part headlamps and approximately 1,147 noncompliant replacement part headlamp lenses were sold to Mercedes-Benz dealerships.

Mercedes supported its petition for inconsequential noncompliance with the following.

1. Damaged Lenses Will Be Replaced With Complying Headlamp Assemblies

Based on the number of replacement lenses sold in Model Years 1991–92, [Mercedes] estimates that approximately 500 lenses are replaced each year in the subject vehicles. Thus, the number of vehicles involved is relatively low.

Effective November 2, 1993, [Mercedes] no longer sells lenses as a replacement part. This means that no source for replacement lenses now exists. Therefore, when lenses are

damaged in the future, the owner's only recourse will be to replace the *entire* headlamp assembly that complies with Standard 108.

In the unlikely event that a noncomplying aftermarket lens market were developed for the 46,000 vehicles produced, their use would be restricted by state inspection laws. At the present time, approximately two-thirds of all states have periodic inspection programs. As evidenced by * * * state vehicle regulations [which Mercedes included with its petition and are contained in the Docket], replacement headlamp lenses are required to keep the headlamp in compliance with Standard 108. It is our understanding that State Inspection garages routinely reject cars if their headlamp lenses do not bear the "DOT" marking, since the lack of "DOT" quickly identifies the headlamp as a non-U.S. unit. Therefore, in the unlikely event that a vehicle owner replaces a damaged lens with a noncomplying aftermarket lens rather than a complying headlamp assembly, the vehicle will fail inspection in most states.

2. Headlamp Aim Not Affected

In a recently published **Federal Register** notice (Docket 93–57) requesting comments on the subject of bonded versus unbonded headlamps, NHTSA stated:

> In previous denials of petitions to allow removable headlamp lenses, NHTSA argued that mechanical aiming of lamps with lens-mounted aiming pads could be affected by any change of the alignment relationship established between lenses and reflectors at the time of manufacture. Thus, alteration of the original alignment during lens replacement could misaim the beam. [58 Fed. Reg. 42,924 (August 12, 1993).]

This concern is not relevant here because the vehicles in question contain *on-board aiming devices* (vehicle headlamp aiming devices). No aiming pads are needed in such advanced technology. Since the lens does not participate in the aiming of the headlamp, aiming cannot be affected by misalignment of the lens during lens replacement in the Mercedes system.

3. Headlamp Beam Formation Not Affected

In the same **Federal Register** notice, NHTSA expressed concern that replacement lenses may alter the headlamp beam formation due to the fluting (prescription) of the lens. Several factors assure photometric compliance with Standard 108 for the Mercedes-Benz unbonded headlamp. First, in the headlamp manufacturing process, the headlamp is designed so that the lens can be clipped onto any housing/reflector assembly and be assured of meeting the photometric performance requirements of Standard 108. * * * [T]he design permits only a positive and secure attachment. There are no shims or adjustments that could influence the lens mounting. Second, from a design point of view, the physical size of the reflector and lens make the headlamp highly insensitive to minute positioning variations in mounting and/or manufacture.

4. Vehicle Maintenance

All affected vehicles are within the time constraints of the warranty period. Thus, within the next 12 months, [Mercedes] will be able to remedy the noncompliance when the subject vehicles are brought in for service. [Mercedes] will direct dealers to bond the headlamps of all noncomplying vehicles brought to authorized dealers for service.

5. Conclusion

In view of the fact that the headlamps comply with all performance aspects of Standard 108, that the replacement lenses are no longer available from [Mercedes] or its dealers, and that the vehicles will be remedied shortly through routine warranty maintenance, there is no adverse impact on safety. Therefore, [Mercedes believes that] NHTSA should grant [its] petition for an exemption for an inconsequential noncompliance with Standard 108.

One comment was received, from Volkswagen of North America, Inc., which supported granting the petition.

NHTSA's principal concerns with headlamp compliance are photometric performance and durability. The agency accepts the petitioner's representation that the accuracy of headlamp aim is not affected by lens replacement. The fact that the petitioner has undertaken to bond the lenses on vehicles that come in for warranty service addresses the agency's concern on durability. NHTSA deems it unlikely that, during the warranty period which is early in the life of the headlamp, the reflector assembly will deteriorate to a point that it affects photometric performance because the lens is clipped rather than bonded. Although 100% of the noncompliant vehicles may not be returned for warranty work, it is the practice of most vehicle owners to have such work done by a factory authorized dealer, and NHTSA deems it likely that most cars will have the noncompliance corrected by the end of the 4-year warranty period.

The agency is currently considering a petition from Robert Bosch GmbH, the manufacturer of the noncompliant headlamps, to permit the use of unbonded lenses on replaceable bulb headlamps that are equipped with on-vehicle aiming devices. If NHTSA were to grant the petition and to propose such an amendment, it might be necessary to include enhanced durability requirements that would help to ensure reflector integrity and resistance to contaminants between the time the lens is damaged and the time it is replaced. At this point, the agency does not know how the unbonded Mercedes headlamps would perform under such enhanced requirements that are yet to be fully developed and evaluated. Therefore, the bonding by Mercedes of its vehicle headlamps seems to be a prudent course of action under the circumstances.

The petition also covered replacement headlamps and replacement lenses. NHTSA understands that these parts are intended to replace parts on the headlamps covered by the petition, and deems it likely that most of the vehicles equipped with the replacement headlamps or lenses will be inspected and corrected during the warranty period as well.

In consideration of the foregoing, it is hereby found that Mercedes-Benz of North America, Inc., has met its burden of persuasion that the noncompliance herein described is inconsequential as it relates to motor vehicle safety and its petition is granted.

Authority: 49 U.S.C. 30118, 30120; delegations of authority at 49 CFR 1.50 and 49 CFR 501.8.

Issued on August 4, 1994.

Barry Felrice,

Associate Administrator for Rulemaking.

[FR Doc. 94–19442 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–59–P

[Docket No. 94–59; Notice 1]

Receipt of Petition for Determination That Nonconforming 1994 Mercedes-Benz S280 Passenger Cars Are Eligible for Importation

AGENCY: National Highway Traffic Safety Administration, DOT.

ACTION: Notice of receipt of petition for determination that nonconforming 1994 Mercedes-Benz S280 passenger cars are eligible for importation.

SUMMARY: This notice announces receipt by the National Highway Traffic Safety Administration (NHTSA) of a petition for a determination that a 1994 Mercedes-Benz S280 that was not originally manufactured to comply with all applicable Federal motor vehicle safety standards is eligible for

importation into the United States because (1) it is substantially similar to a vehicle that was originally manufactured for importation into and sale in the United States and that was certified by its manufacturer as complying with the safety standards, and (2) it is capable of being readily modified to conform to the standards.

DATES: The closing date for comments on the petition is September 9, 1994.

ADDRESSES: Comments should refer to the docket number and notice number, and be submitted to: Docket Section, Room 5109, National Highway Traffic Safety Administration, 400 Seventh St., SW., Washington, DC 20590. [Docket hours are from 9:30 am to 4 pm]

FOR FURTHER INFORMATION CONTACT: Ted Bayler, Office of Vehicle Safety Compliance, NHTSA (202–366–5306).

SUPPLEMENTARY INFORMATION:

Background

Under 49 U.S.C. § 30141(a)(1)(A) (formerly section 108(c)(3)(A)(i)(I) of the National Traffic and Motor Vehicle Safety Act (the Act)), a motor vehicle that was not originally manufactured to conform to all applicable Federal motor vehicle safety standards shall be refused admission into the United States unless NHTSA has determined that the motor vehicle is substantially similar to a motor vehicle originally manufactured for importation into and sale in the United States, certified under 49 U.S.C. § 30115 (formerly section 114 of the Act), and of the same model year as the model of the motor vehicle to be compared, and is capable of being readily modified to conform to all applicable Federal motor vehicle safety standards.

Petitions for eligibility determinations may be submitted by either manufacturers or importers who have registered with NHTSA pursuant to 49 CFR Part 592. As specified in 49 CFR 593.7, NHTSA publishes notice in the **Federal Register** of each petition that it receives, and affords interested persons an opportunity to comment on the petition. At the close of the comment period, NHTSA determines, on the basis of the petition and any comments that it has received, whether the vehicle is eligible for importation. The agency then publishes this determination in the **Federal Register**.

Champagne Imports, Inc. of Lansdale, Pennsylvania (Registered Importer No. R–90–009) has petitioned NHTSA to determine whether 1994 Mercedes-Benz S280 (Model ID 140.028) passenger cars are eligible for importation into the United States. The vehicle which Champagne believes is substantially similar is the 1994 Mercedes-Benz S320. Champagne has submitted information indicating that Daimler Benz A.G., the company that manufactured the 1994 Mercedes-Benz S320, certified that vehicle as conforming to all applicable Federal motor vehicle safety standards and offered it for sale in the United States.

The petitioner contends that it carefully compared the S280 to the S320, and found the two models to be substantially similar with respect to compliance with most applicable Federal motor vehicle safety standards.

Champagne submitted information with its petition intended to demonstrate that the 1994 model S280, as originally manufactured, conforms to many Federal motor vehicle safety standards in the same manner as the 1994 model S320 that was offered for sale in the United States, or is capable of being readily modified to conform to those standards.

Specifically, the petitioner claims that the 1994 model S280 is identical to the certified 1994 model S320 with respect to compliance with Standards Nos. 102 *Transmission Shift Lever Sequence * * *,* 103 *Defrosting and Defogging Systems,* 104 *Windshield Wiping and Washington Systems,* 105 *Hydraulic Brake Systems,* 106 *Brake Hoses,* 107 *Reflecting Surfaces,* 109 *New Pneumatic Tires,* 113 *Hood Latch Systems,* 116 *Brake Fluid,* 124 *Accelerator Control Systems,* 201 *Occupant Protection in Interior Impact,* 202 *Head Restraints,* 203 *Impact Protection for the Driver From the Steering Control System,* 204 *Steering Control Rearward Displacement,* 205 *Glazing Materials,* 207 *Seating Systems,* 209 *Seat Belt Assemblies,* 210 *Seat Belt Assembly Anchorages,* 211 *Wheel Nuts, Wheel Discs and Hubcaps,* 212 *Windshield Retention,* 216 *Roof Crush Resistance,* 219 *Windshield Zone Intrusion,* and 302 *Flammability of Interior Materials.*

Additionally, the petitioner states that the 1994 model S280 complies with the Bumper Standard found in 49 CFR Part 581.

Petitioner also contends that the vehicle is capable of being readily modified to meet the following standards, in the manner indicated:

Standard No. 101 *Controls and Displays:* (1) substitution of a lens marked "Brake" for a lens with an ECE symbol on the brake failure indicator lamp; (b) installation of a seat belt warning lamp; (c) recalibration of the speedometer/odometer from kilometers to miles per hour.

Standard No. 108 *Lamps, Reflective Devices and Associated Equipment:* (a) installation of U.S.-model headlamp assemblies which incorporate sealed beam headlamps; (b) installation of U.S.-model front and rear sidemarker/reflector assemblies; (c) installation of U.S.-model taillamp assemblies; (d) installation of a high mounted stop lamp.

Standard No. 110 *Tire Selection and Rims:* installation of a tire information placard.

Standard No. 111 *Rearview Mirrors:* replacement of the passenger side rear view mirror, which is convex, but lacks the required warning statement.

Standard No. 114 *Theft Protection:* installation of a buzzer microswitch and a warning buzzer in the steering lock assembly.

Standard No. 115 *Vehicle Identification Number:* installation of a VIN plate that can be read from outside the left windshield pillar, and a VIN reference label on the edge of the door or latch post nearest the driver.

Standard No. 118 *Power Window Systems:* rewiring of the power window system so that the window transport is inoperative when the ignition is switched off.

Standard No. 206 *Door Locks and Door Retention Components:* replacement of the rear door locks and lock buttons with U.S.-model parts.

Standard No. 208 *Occupant Crash Protection:* (a) installation of a U.S.-model seat belt in the driver's position, or a belt webbing-actuated microswitch inside the driver's seat belt retractor; (b) installation of an ignition switch-actuated seat belt warning lamp and buzzer; (c) replacement of the driver and passenger side air bags with U.S.-model components and installation of U.S.-model knee bolsters. The petitioner states that the remaining component of the vehicle's passive restraint system, a control unit/sensor assembly, has a part number identical to that found on the U.S. certified 1994 model S320.

Standard No. 214 *Side Door Strength:* installation of reinforcing beams.

Standard No. 301 *Fuel System Integrity:* installation of a rollover valve in the fuel tank vent line between the fuel tank and the evaporative emissions collection canister.

Interested persons are invited to submit comments on the petition described above. Comments should refer to the docket number and be submitted to: Docket Section, National Highway Traffic Safety Administration, Room 5109, 400 Seventh Street, S.W., Washington, DC 20590. It is requested but not required that 10 copies be submitted.

All comments received before the close of business on the closing date indicated above will be considered, and

will be available for examination in the docket at the above address both before and after that date. To the extent possible, comments filed after the closing date will also be considered. Notice of final action on the petition will be published in the **Federal Register** pursuant to the authority indicated below.

Authority: 49 U.S.C. 30141 (a)(1)(A) and (b)(1); 49 CFR 593.8; delegations of authority at 49 CFR 1.50 and 501.8.

Issued on: August 3, 1994.

William A. Boehly,

Associate Administrator for Enforcement.

[FR Doc. 94–19443 Filed 8–9–94; 8:45 am]

BILLING CODE 4910–59–M

DEPARTMENT OF THE TREASURY

Public Information Collection Requirements Submitted to OMB for Review

August 4, 1994.

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 2110, 1425 New York Avenue, NW., Washington, DC 20220.

Internal Revenue Service (IRS)

OMB Number: 1545–0205
Form Number: IRS Form 5452
Type of Review: Revision
Title: Corporate Report of Nondividend Distributions
Description: Form 5452 is used by corporations to report their nontaxable distributions as required by Internal Revenue Code (IRC) section 6042(d)(2). The information is used by IRS to verify that the distributions are nontaxable as claimed.
Respondents: Farms, Businesses or other for-profit, Small businesses or organizations
Estimated Number of Respondents/ Recordkeepers: 1,700
Estimated Burden Hours Per Respondent/Recordkeeper:
Recordkeeping—19 hr., 51 min.
Learning about the law or the form—1 hr., 20 min.
Preparing the form—3 hr., 35 min.
Copying, assembling, and sending the form to the IRS—32 min.
Frequency of Response: On occasion
Estimated Total Reporting/ Recordkeeping Burden: 43,010 hours
Clearance Officer: Garrick Shear (202) 622–3869, Internal Revenue Service, room 5571, 1111 Constitution Avenue NW., Washington, DC 20224.
OMB Reviewer: Milo Sunderhauf (202) 395–7340, Office of Management and Budget, room 10226, New Executive Office Building, Washington, DC 20503.

Dale A. Morgan,

Departmental Reports, Management Officer.

[FR Doc. 94–19499 Filed 8–9–94; 8:45 am]

BILLING CODE 4830–01–P

Public Information Collection Requirements Submitted to OMB for Review

August 3, 1994.

The Department of the Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, room 2110, 1425 New York Avenue NW., Washington, DC 20220.

Internal Revenue Service (IRS)

OMB Number: 1545–0155
Form Number: IRS Form 3468
Type of Review: Extension
Title: Investment Credit
Description: Taxpayers are allowed a credit against their income tax for certain expenses they incur for their trades or businesses. Form 3468 is used to compute this investment tax credit. The information collected is used by the IRS to verify that the credit has been correctly computed.
Respondents: Individuals or households, Farms, Businesses or other for-profit, Non-profit institutions, Small businesses or organizations
Estimated Number of Respondents/ Recordkeepers: 360,000
Estimated Burden Hours Per Respondent/Recordkeeper:
Recordkeeping—12 hrs., 40 min.
Learning about the law or the form—3 hrs., 28 min.
Preparing and sending the form to the IRS—3 hrs., 50 min.
Frequency of Response: Annually
Estimated Total Reporting/ Recordkeeping Burden: 7,192,800 hours
Clearance Officer: Garrick Shear, (202) 622–3869, Internal Revenue Service, room 5571, 1111 Constitution Avenue NW., Washington, DC 20224
OMB Reviewer: Milo Sunderhauf, (202) 395–7340, Office of Management and Budget, room 10226, New Executive Office Building, Washington, DC 20503

Dale A. Morgan,

Departmental Reports Management Officer.

[FR Doc. 94–19500 Filed 8–9–94; 8:45 am]

BILLING CODE 4830–01–P

Public Information Collection Requirements Submitted to OMB for Review

August 4, 1994

The Department of Treasury has submitted the following public information collection requirement(s) to OMB for review and clearance under the Paperwork Reduction Act of 1980, Public Law 96–511. Copies of the submission(s) may be obtained by calling the Treasury Bureau Clearance Officer listed. Comments regarding this information collection should be addressed to the OMB reviewer listed and to the Treasury Department Clearance Officer, Department of the Treasury, Room 2110, 1425 New York Avenue, NW., Washington, DC 20220.

Internal Revenue Service (IRS)

OMB Number: 1545–0935
Form Number: IRS Form 1120–FSC and Schedule P (Form 1120–FSC)
Type of Review: Revision
Title: U.S. Income Tax Return of a Foreign Sales Corporation (1120–FSC) and Transfer Price or Commission (Schedule P—Form 1120–FSC)
Description: Form 1120–FSC is filed by foreign corporations that have elected to be foreign sales corporations (FSCs) or small FSCs. The FSC uses Form 1120–FSC to report income and expenses and to figure its tax liability. IRS uses Form 1120–FSC and Schedule P (Form 1120–FSC) to determine whether the FSC has correctly reported its income and expenses and figured its tax liability correctly.
Respondents: Businesses or other for-profit
Estimated Number of Respondents/ Recordkeepers: 5,000
Estimated Burden Hours Per Respondent/Recordkeeper:

Form	Recordkeeping	Learning about the law or the form	Preparing and sending the form to the IRS
1120–FSC	91 hr., 50 min	16 hr., 35 min	35 hr., 35 min.
Sch. P (1120–FSC)	10 hr., 2 min	1 hr., 29 min	1 hr., 43 min.

Frequency of Response: Annually
Estimated Total Reporting/ Recordkeeping Burden: 1,051,200 hours
Clearance Officer: Garrick Shear (202) 622–3869, Internal Revenue Service, room 5571, 1111 Constitution Avenue NW., Washington, DC 20224
OMB Reviewer: Milo Sunderhauf (202) 395–7340, Office of Management and Budget, room 10226, New Executive Office Building, Washington, DC 20503

Dale A. Morgan,

Departmental Reports Management Officer.

[FR Doc. 94–19501 Filed 8–9–94; 8:45 am]

BILLING CODE 4830–01–P

TRADE AND DEVELOPMENT AGENCY

Public Information Collection Requirements Submitted to Office of Management and Budget for Review

AGENCY: Trade and Development Agency.

ACTION: Notice.

SUMMARY: The U.S. Trade and Development Agency (TDA) has submitted the following information collection requirements to OMB for review and clearance under the Paperwork Reduction Act of 1980, as amended, (44 U.S.C. chapter 35, section 3507).

FOR FURTHER INFORMATION CONTACT:

David Denny, U.S. Trade and Development Agency, State Annex 16, Room 309, Washington, DC 20523–1602, Tel. (703) 875–4357. Copies of these submissions may be obtained from TDA's Information Officer, Carol Stillwell, SA–16, Room 309, Washington, DC 20523–1602, Tel. (703) 875–4357.

Persons wishing to comment on these collections of information with suggestions for ways to reduce the burdens should also contact Jefferson Hill, Office of Information and Regulatory Affairs, OMB, 725 17th St. NW., Room 10202, Washington, DC 20503, Tel. (202) 395–7340.

Title: TDA Project Evaluation Program

Action: New Request for Three Year OMB Approval
Respondents: Businesses and Foreign Governments
Frequency of Response: In most instances, one time only
Estimated Annual Burden: 4,800 respondents; one half hour average burden per response; 2,400 hours total annual burden
Needs and Uses: TDA is undertaking a broad project evaluation program. Surveys and information collection activities will be carried out in order to assess how to continuously improve the agency's effectiveness and responsiveness to its customers. TDA seeks information on whether its programs have benefited the U.S. private sector and the host countries in which they are implemented. The results of the evaluation program should assist TDA in planning future activities.

Lisa DeSoto,

General Counsel.

[FR Doc. 94–19064 Filed 8–9–94; 8:45 am]

BILLING CODE 8045–01–M

Sunshine Act Meetings

Federal Register

Vol. 59, No. 153

Wednesday, August 10, 1994

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

TIME AND DATE: 12:00 noon, Monday, August 15, 1994.

PLACE: Marriner S. Eccles Federal Reserve Board Building, C Street entrance between 20th and 21st Streets, NW., Washington, D.C. 20551

STATUS: Closed

MATTERS TO BE CONSIDERED:

1. Personnel actions (appointments, promotions, assignments, reassignments, and salary actions) involving individual Federal Reserve System employees.
2. Any items carried forward from a previously announced meeting.

CONTACT PERSON FOR MORE INFORMATION: Mr. Joseph R. Coyne, Assistant to the Board; (202) 452-3204. You may call (202) 452-3207, beginning at approximately 5 p.m. two business days before this meeting, for a recorded announcement of bank and bank holding company applications scheduled for the meeting.

Dated: August 5, 1994.

Jennifer J. Johnson,

Deputy Secretary of the Board.

[FR Doc. 94-19583 Filed 8-8-94; 10:25 am]

BILLING CODE 6210-01-P

NATIONAL LABOR RELATIONS BOARD

TIME AND DATE: 11:55 a.m., Thursday, August 5, 1994.

PLACE: Board Conference Room, Eleventh Floor, 1099 Fourteenth St., N.W., Washington, D.C. 20570.

STATUS: Closed to public observation pursuant to 5 U.S.C. Section 552(b)(c)(2) (internal personnel rules and practices) and (c)(6) (personal information where disclosure would constitute a clearly unwarranted invasion of personal privacy).

MATTERS TO BE CONSIDERED: Personnel matters.

CONTACT PERSON FOR MORE INFORMATION: John C. Truesdale, Executive Secretary, National Labor Relations Board, Washington, D.C. 20570, Telephone: (202) 273-1940.

Dated, Washington, D.C., August 5, 1994.

By direction of the Board:

John C. Truesdale,

Executive Secretary, National Labor Relations Board.

[FR Doc. 94-19598 Filed 8-8-94; 10:27 am]

BILLING CODE 7445-01-M

NUCLEAR REGULATORY COMMISSION

DATE: Weeks of August 8, 15, 22, and 29, 1994.

PLACE: Commissioners' Conference Room, 11555 Rockville Pike, Rockville, Maryland.

STATUS: Public and Closed.

MATTERS TO BE CONSIDERED:

Week of August 8

There are no meetings scheduled for the Week of August 8.

Week of August 15—Tentative

There are no meetings scheduled for the Week of August 15.

Week of August 22—Tentative

Monday, August 22

2:00 p.m.

Briefing on Additional Changes to Part 100 Rulemaking and Proposed Update on Source Term (Public Meeting)

(Contact: Leonard Soffer, 301-415-6574)

Tuesday, August 23

9:30 a.m.

Periodic Briefing on EEO Program (Public Meeting)

(Contact: Vandy Miller, 301-415-7380)

11:30 a.m.

Affirmation/Discussion and Vote (Public Meeting) (if needed)

Week of August 29—Tentative

Wednesday, August 31

10:00 a.m.

Briefing by U.S. Enrichment Corporation (Public Meeting)

11:30 a.m.

Affirmation/Discussion and Vote (Public Meeting) (if needed)

Note: Affirmation sessions are initially scheduled and announced to the public on a time-reserved basis. Supplementary notice is provided in accordance with the Sunshine Act as specific items are identified and added to the meeting agenda. If there is no specific subject listed for affirmation, this means that no item has as yet been identified as requiring any Commission vote on this date.

The schedule for Commission meetings is subject to change on short notice. To verify the status of meetings call (recording)—(301) 504-1292.

CONTACT PERSON FOR MORE INFORMATION: William Hill (301) 504-1661.

Dated: August 5, 1994.

Andrew L. Bates,

Chief, Operations Branch, Office of the Secretary.

[FR Doc. 94-19584 Filed 8-8-94; 10:26 am]

BILLING CODE 7590-01-M

federal register

Wednesday
August 10, 1994

Part II

Department of Labor

Occupational Safety and Health Administration

29 CFR Parts 1910, et al.
Occupational Exposure to Asbestos; Final Rule

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Parts 1910, 1915, and 1926

RIN: 1218–AB25

Occupational Exposure to Asbestos

AGENCY: Occupational Safety and Health Administration, Department of Labor.

ACTION: Final rule.

SUMMARY: These final standards amend the Occupational Safety and Health Administration's (OSHA's) standards issued June 17, 1986 (51 FR 22612, 29 CFR 1910.1001, June 20, 1986) for occupational exposure to asbestos in general industry, and the construction industry, 29 CFR 1926.1101 (previously 1926.58). In addition, they include a separate standard covering occupational exposure to asbestos in the shipyard industry, (29 CFR 1915.1001). Major revisions in these standards include a reduced time-weighted-average permissible exposure limit (PEL) of 0.1 fiber per cubic centimeter (f/cc) for all asbestos work in all industries, a new classification scheme for asbestos construction and shipyard industry work which ties mandatory work practices to work classification, a presumptive asbestos identification requirement for "high hazard" asbestos containing building materials, limited notification requirements for employers who use unlisted compliance methods in high risk asbestos abatement work, and mandatory methods of control for brake and clutch repair.

Most of the revisions in these amended standards are the final response to an order of the Court of Appeals for the District of Columbia Circuit, *Building and Construction Trades Department* v. *Brock*, 838 F. 2d 1258, (D.C. Cir 1988), which had upheld the 1986 standards in major respects, but which had remanded certain issues for reconsideration. OSHA had made earlier changes in response to the court order on December 14, 1989 (54 FR 52024, December 20, 1989), and on February 5, 1990 (55 FR 3724).

OSHA believes that these final standards fully address all of the concerns of the participants in this rulemaking and are responsive to all issues remanded by the court for reconsideration.

DATES: The effective date of these amendments is October 11, 1994. Various start-up dates are specified in the standards.

FOR FURTHER INFORMATION CONTACT: Mr. James F. Foster, Director of Information and Consumer Affairs, Occupational Safety and Health Administration, U.S. Department of Labor, Room N3647, 200 Constitution Avenue, NW., Washington, DC 20210, telephone (202) 219–8151.

SUPPLEMENTARY INFORMATION:

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I. Regulatory History
II. Pertinent Legal Authority
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  a. General Issues
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VI. Authority and Signature
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I. Regulatory History

OSHA has regulated asbestos several times as more information has become available. Asbestos rulemakings marked the early years of the Agency. A 12 f/cc permissible exposure limit (PEL) for asbestos was included in the initial promulgation on May 29, 1971 (36 FR 10466) of OSHA standards pursuant to Section 6(a) of the Act. In response to a petition by the Industrial Union Department of the AFL-CIO, OSHA issued an Emergency Temporary Standard (ETS) on asbestos on December 7, 1971, which established a PEL of 5 f/cc as an 8-hour time-weighted average (TWA) and a peak exposure level of 10 f/cc.

In June 1972, OSHA promulgated a new final standard that established an 8-hour TWA PEL of 5 f/cc and a ceiling limit of 10 f/cc. These limits were intended primarily to protect employees against asbestosis, and it was hoped that they would provide some incidental degree of protection against asbestos induced forms of cancer. Effective July 1976, OSHA's 8-hour TWA limit was reduced to 2 f/cc and this limit remained in effect up to the effective date of the revised 1986 standards.

In October 1975, OSHA published a notice of proposed rulemaking (40 FR 47652) to revise the asbestos standard because the Agency believed that "sufficient medical and scientific evidence has been accumulated to warrant the designation of asbestos as a human carcinogen" and that advances in monitoring and protective technology made re-examination of the standard "desirable." This proposal would have reduced the 8-hour TWA to 0.5 f/cc and imposed a ceiling limit of 5 f/cc for 15 minutes. The 1975 proposal would have applied to all industries except construction.

At that time no separate proposal applicable to the construction industry was developed by the Agency.

On May 24, 1983 OSHA consulted with the Advisory Committee for Construction Safety and Health ("ACCSH") concerning the applicability of any new asbestos standard to the construction industry. ACCSH endorsed OSHA's position that any new PEL adopted for general industry should also apply to the construction industry (Ex. 84–424).

On November 4, 1983 OSHA published an ETS for asbestos (48 FR 51096). The ETS marked a new regulatory initiative, related to, but not part of the 1975 proceeding. The ETS was held invalid by the U.S.Circuit Court of Appeals for the Fifth Circuit on March 7, 1984.

Subsequently, OSHA published a notice of proposed rulemaking (49 FR 1416, April 10, 1984) for a standard covering occupational exposure to asbestos in all work places subject to the Act. Pursuant to Section 6(c) of the Act, the ETS also served as a proposed rule. On June 17, 1986, OSHA issued two revised standards, one governing occupational exposure to asbestos in general industry workplaces, the other applicable to construction workplaces (51 FR 22612 et seq., June 20, 1986). Effective July 21, 1986, the revised standards amended OSHA's previous asbestos standard issued in 1972. The 1986 standards explicitly applied to occupational exposure to non-asbestiform tremolite, anthophyllite and actinolite. After a subsequent and separate rulemaking proceeding OSHA has deleted these minerals from the scope of the asbestos standards. (57 FR 24310, June 8, 1992).

The separate comprehensive asbestos standards for general industry and construction which were issued in 1986 shared the same permissible exposure limit (PEL) and most ancillary requirements. Both standards reduced the 8-hour time weighted average (TWA) PEL tenfold to 0.2 f/cc from the previous 2 f/cc limit. Specific provisions were added in the construction standard to cover unique hazards relating to asbestos abatement and demolition jobs.

Several major participants in the rulemaking proceeding including the AFL–CIO, the Building and Construction Trades Department (BCTD) of the AFL–CIO, and the Asbestos Information Association (AIA), challenged various provisions of the revised standards. On February 2, 1988, the U.S. Court of Appeals for the District of Columbia issued its decision upholding most major challenged

provisions, but remanding certain issues to OSHA for reconsideration *(BCTD, AFL–CIO* v. *Brock*, 838 F.2d 1258). The Court determined that OSHA had not adequately explained why it was not adopting certain recommended provisions in light of evidence suggesting that those provisions would be feasible to implement and would provide more than a de minimis benefit for worker health. The Court also ordered OSHA to clarify the regulatory text for two provisions and found one provision, a ban of spraying asbestos-containing products, unsupported by the record. In addition, OSHA's failure to adopt a short-term exposure limit (STEL) was ordered to be reconsidered within 60 days of the Court's mandate. In partial response, OSHA issued a STEL of 1 f/cc measured over a 30-minute sampling period, on September 14, 1988 (53 FR 35610).

In response to additional petitions by BCTD and the AFL–CIO, the Court, in an October 30, 1989 order, divided the remand issues into three categories as follows. With respect to three issues, the Court ordered OSHA to take action by December 14, 1989. These issues were:

Issue 1. formally delete the ban on the spraying of asbestos-containing materials;

Issue 2. clarify that periodic monitoring in the construction industry must be resumed after conditions change; and

Issue 3. Clarify the exemption for "small-scale, short duration operations" from the negative-pressure enclosure requirements of the construction standard to limit the exemption to work operations where it is impractical to construct an enclosure because of the configuration of the work environment.

OSHA issued its response on these issues on December 14, 1989 (54 FR 52024, December 20, 1989). In that document OSHA (1) removed the ban on the spraying of asbestos-containing materials; (2) changed the regulatory text to clarify that construction employers must resume periodic monitoring whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional asbestos exposure; and (3) explained why OSHA was not amending the regulatory text to clarify the limited exemption for "small-scale, short-duration operations" in the construction industry standard, but instead would institute rulemaking on this issue.

With respect to the second group of issues, the Court ordered OSHA to complete its response on the existing record by January 28, 1990. These issues are:

Issue 4. The possibility of further regulations governing employee smoking controls;

Issue 5. The effectiveness levels of various respirators and OSHA's policy of requiring respirators to protect workers at only PEL level; and

Issue 6. The possibility of bi-lingual warnings and labels for employers with a significant number of non-English-speaking employees.

The Court stated that if OSHA determines that these issues could not be resolved on the existing record, OSHA may explain why and commence new rulemaking instead.

On January 28, 1990, OSHA issued its response on these issues (55 FR 3724, February 5, 1990). In that document, OSHA: (1) prohibited workplace smoking in areas where occupational exposure to asbestos takes place; expanded training requirements to include information about available smoking cessation programs; required the distribution of self-help smoking cessation material; and, required a written opinion by the physician stating that the employee has been advised of the combined dangers of smoking and working with asbestos; (2) explained how and why the 1986 respiratory protection standards will reduce employee risk below that remaining solely as a result of the PEL, and that the effectiveness levels of respirators are under review; and (3) required employers to ensure that employees working in or near regulated areas understand warning signs, and required training programs to specifically instruct employees as to the content and presence of signs and labels.

Finally, as to the third group of three remaining remand issues, the Court ordered OSHA to resolve these issues after rulemaking. These issues are:

Issue 7. The establishment of operation-specific permissible exposure limits;

Issue 8. The extension of reporting and information transfer requirements; and

Issue 9. The expansion of the competent person requirement to all employers engaged in any kind of construction work.

In addition, the Court granted OSHA's unopposed request to publish the Notice of Proposed Rulemaking on this group of issues on April 13, 1990, to allow sufficient time to consult with the Advisory Committee on Construction Safety and Health (ACCSH). Under the Construction Safety Act (40 USC 333) and regulations in 29 CFR 1911.10 and 29 CFR 1912.3, OSHA was required to consult with that committee in the formulation of regulatory proposals which would apply to employment in construction. OSHA presented the proposed regulatory text and pertinent explanatory materials to the ACCSH and consulted with them on March 14, 1990. The Committee submitted comments and suggestions which were discussed in the proposal. The Court, on May 2, 1990 granted OSHA's further motion and extended the time to issue the proposal until July 12, 1990, in order to allow coordination of the proposal with other regulatory agencies, in particular EPA.

The proposed revisions were published July 20, 1990 (55 FR 29712). The date for close of the public comment period in the NPRM was September 25, 1990 with the public hearing scheduled to commence October 23, 1990. However, several interested parties requested additional time for comment on the NPRM due to the breadth of issues it presented. OSHA felt the objective of developing a complete rulemaking record would be served and extended the period for submission of public comments and for notices to appear at the informal hearing until December 3, 1990. The Agency also rescheduled the informal hearing to begin January 23, 1991. In the notice extending the time periods, OSHA also explained more clearly that the ACCSH report referenced in the NPRM was submitted by the labor representatives on that committee and not by the committee as a whole (55 *FR* p. 38703, September 20, 1990).

The informal hearing was held for 13 days from January 23 to February 8, 1991. At the close of the hearing Administrative Law Judge Sheldon Lipson set April 12, 1991 as the close of the post-hearing comment period and June 12, 1991 as the close of the post-hearing briefing period. Subsequently on request, Judge Lipson extended these periods to April 26 and June 26 respectively. BCTD requested OSHA extend the post-hearing briefing period 4 weeks to allow additional time to fully address all issues of concern due to the extent and complexity of the records. OSHA granted this request and notified participants that the post-hearing briefing period was extended to July 24, 1991.

On November 3, 1992, by **Federal Register** notice, OSHA re-opened the comment period to allow supplementary public comment on options to protect workers from inadvertent exposure to asbestos in buildings (57 FR 49697). This issue, not part of the Court's remand order, was broached by the Agency in the preamble to the proposal, and had been the subject of litigation brought by Service Employees International Union (SEIU) against EPA. In 1988 the Service Employees International Union, AFL-CIO petitioned the Environmental Protection Agency for regulation of asbestos in public and commercial

buildings and subsequently sued the Agency. This resulted in the convening of a series of "Policy Dialogue" meetings established by EPA in an attempt to reach agreement on issues concerning asbestos in public and commercial buildings. As discussed in the NPRM of July 20, 1990, OSHA and a variety of other interested parties participated in the meetings which took place between May 1989 and May 1990. These groups included realty interests, lenders and insurance interests, unions, asbestos manufacturers, public interest groups, asbestos consultants and contractors and states. The group failed to agree on all issues, but did generally agree that the presence of asbestos should be known to building service workers. The major area of disagreement in the group dealt with the characterization of risk to general building occupants and office workers. The group also did not agree on the need for specific federal asbestos inspection requirements.

SEIU and other unions also participated in this rulemaking and urged OSHA to issue a building inspection rule. After discussions with EPA and review of the record concerning how best to protect employees against unknowing exposure the Agency published a request for comment on a regulatory approach to protect building service workers. The approach would require certain high-risk materials in accessible building/facility areas be designated presumptive asbestos containing materials and thus be treated as if they contained asbestos, until or unless the presumption was rebutted through sampling or specific information in the owner's possession relation to construction specifications. The notice also asked for comments on the Health Effects Institute (HEI) report which had been submitted to the record after the close of the post-hearing briefing periods. The notice resulted in submission of an additional 60 sets of comments, and the comment period closed on January 4, 1993.

The record of this rulemaking consists of over 55,000 pages. OSHA has worked closely with EPA so that the regulations of both agencies are compatible to the extent OSHA's mandate allows.

II. Pertinent Legal Authority

Authority for issuance of this standard is found primarily in sections 6(b), 8(c), and 8(g)(2) of the Occupational Safety and Health Act of 1970 (the Act), 29 U.S.C. 655(b), 657(c), and 657(g)(2) and in the Construction Safety Act, 40 U.S.C. 333. Section 6(b)(5) governs the issuance of occupational safety and health standards dealing with toxic materials or harmful physical agents. Section 3(8) of the Act defines an occupational safety and health standard as:

> * * *A standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.

The Supreme Court has said that section 3(8) applies to all permanent standards promulgated under the Act and requires the Secretary, before issuing any standard, to determine that it is reasonably necessary and appropriate to remedy a significant risk of material health impairment. *Industrial Union Department* v. *American Petroleum Institute*, 448 U.S. 607 (1980).

The "significant risk" determination constitutes a finding that, absent the change in practices mandated by the standard, the workplaces in question would be "unsafe" in the sense that workers would be threatened with a significant risk of harm. *Id.* at 642. A significant risk finding, however, does not require mathematical precision or anything approaching scientific certainty if the "best available evidence" does not warrant that degree of proof. *Id.* at 655–656; 29 U.S. 655 (b)(5). Rather, the Agency may base its finding largely on policy considerations and has considerable leeway with the kinds of assumptions it applies in interpreting the data supporting it, *Id.* 655–656; 29 U.S. 655(b)(5). The Court's opinion indicates that risk assessments, which may involve mathematical estimates with some inherent uncertainties, are a means of demonstrating the existence of significant risk.

The court further stated:

> It is the Agency's responsibility to determine in the first instance what it considers to be a "significant" risk. Some risks are plainly acceptable and others are plainly unacceptable. If, for example, the odds are one in a billion that a person will die from cancer by taking a drink of chlorinated water, the risk clearly could not be considered significant. On the other hand, if the odds are one in a thousand that regular inhalation of gasoline vapors that are 2% benzene will be fatal a reasonable person might well consider the risk significant and take the appropriate steps to decrease or eliminate it. (I.U.D. v A.P.I., 448 U.S. et 655).

OSHA has always considered that a working lifetime risk of death of over 1 per 1000 from occupational causes is significant. This has been consistently upheld by the courts. See the recent discussion in the cadmium preamble 57 FR 42102, 42204 and the earlier asbestos preambles.

OSHA believes that compliance with these final amendments to reduce the PEL to 0.1 f/cc as a time-weighted average measured over 8 hours will further reduce a significant health risk which existed after imposing a 0.2 f/cc PEL. OSHA's risk assessment accompanying the 1986 standard, showed that lowering the TWA PEL from 2 f/cc to 0.2 f/cc reduces the asbestos cancer mortality risk from lifetime exposure from 64 deaths per 1,000 workers to 7 deaths per 1,000 workers. OSHA estimated that the incidence of asbestosis would be 5 cases per 1,000 workers exposed for a working lifetime under the TWA PEL of 0.2 f/cc. Counterpart risk figures for 20 years of exposure are excess cancer risks of 4.5 per 1,000 workers and an estimated asbestosis incidence of 2 cases per 1,000 workers.

OSHA's risk assessment also showed that reducing exposures to 0.1 f/cc would reduce excess cancer risk to 3.4 per 1,000 workers and a 20 year exposure risk to 2.3 per 1,000 workers. OSHA concludes therefore that reducing the exposure limit to 0.1 f/cc will further reduce significant risk.

OSHA's current estimates of employee exposure in the various operations covered by these standards are referenced in the Regulatory Impact Analysis found later in this document. Additional exposure estimates, based on record evidence are referenced throughout this document in the relevant preamble discussion concerning each operation.

In the Court of Appeals litigation, AIA challenged OSHA's use of the PEL to calculate the residual risk remaining after the standard is implemented. AIA contended that workers would actually be exposed to average levels significantly below the PEL because employers would be required to engineer down to levels well below the PEL to assure that random fluctuations would not result in an OSHA compliance officer measuring an exposure level over the PEL during a routine inspection. Therefore, AIA contended, in calculating residual risk, OSHA should assume that employees will be exposed to average levels that are between one-half and one-quarter of the PEL. The Court implied that such an argument might have merit if factually supported and suggested that OSHA should make its own calculations of the relation between permissible exposure limit and the actual exposures such a limit would produce. (838 F.2d at 1266)

Having carefully considered the issue, OSHA concludes it would be unrealistic

to base its risk assessment on the assumption that employers will engineer to levels significantly below the PEL. First, as discussed below, the PEL of 0.1 f/cc is at the limit of feasibility for those workplaces in which asbestos levels are most difficult to control, and an assumption that average exposures will be substantially below the PEL will clearly be unrealistic for such workplaces. Second, OSHA found in issuing the 1986 standard that AIA's argument about uncontrollable fluctuations was exaggerated because such fluctuations could be minimized through proper inspection and maintenance of engineering controls and through proper training and supervision of employees whose work practices affected exposure levels. (51 FR at 22653). Third, OSHA's enforcement policy gives employers the opportunity to show that a compliance officer's measurement over the PEL is unrepresentatively high and does not justify a citation, thus alleviating any concern employers might have that they will be cited on the basis of a single measurement that results from uncontrollable fluctuations. Fourth, even if some employers are sufficiently risk-averse to engineer down to well below the PEL to avoid a slight risk of citation, OSHA cannot base a realistic risk assessment on the assumption that most employers will do so.

The 0.1 f/cc level leaves a remaining significant risk. However as discussed below, and in earlier documents, OSHA believes this is the practical lower limit of feasibility for measuring asbestos levels reliably. However the work practices and engineering controls specified below for specific operations and required respirator use will in OSHA's view further reduce the risk. As discussed below, OSHA has carefully reviewed all the public suggestions to further reduce significant risk and has adopted those which have merit.

After OSHA has determined that a significant risk exists and that such risk can be reduced or eliminated by the proposed standard, it must set the standard "which most adequately assures, to the extent feasible on the basis of the best available evidence, that no employee will suffer material impairment of health* * *," Section 6(b)(5) of the Act. The Supreme Court has interpreted this section to mean that OSHA must enact the most protective standard necessary to eliminate a significant risk of material health impairment, subject to the constraints of technological and economic feasibility. *American Textile Manufacturers Institute, Inc. v. Donovan*, 452 U.S. 490(1981). The Court held that "cost-benefit analysis is not required by the statute because feasibility analysis is." *Id.* at 509.

Authority to issue this standard is also found in section 8(c) of the Act. In general, this section gives the Secretary authority to require employers to make, keep, and preserve records regarding activities related to the Act. In particular, section 8(c)(3) gives the Secretary authority to require employers to "maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured under section 6." Provisions of OSHA standards which require the making and maintenance of records of medical examinations, exposure monitoring, and the like are issued pursuant to section 8(c) of the Act.

Because the revisions to the asbestos standards are reasonably related to these statutory goals, the Secretary finds that these standards are necessary and appropriate to carry out is responsibilities under the Act.

Response to recommendations of public to further reduce risk: As noted above, this rulemaking proceeding is a response to a remand order of the Court of Appeals for the D.C. Circuit. The Court determined that in the earlier 1986 rulemaking, OSHA had not sufficiently explained its decisions not to adopt certain regulatory provisions recommended by participants in that rulemaking. In particular, the Court of Appeals held that it is OSHA's "duty to keep adding measures so long as they afford benefit and are feasible, up to the point where (it) no longer finds significant risk," and that it is OSHA's duty to consider the reasonableness of adopting them. 838 F.2d at 1269. The Court noted that OSHA need not justify its failure to adopt all suggested provisions: rather, the Agency must defend not adopting only those provisions demonstrated by their advocates, "to be feasible to implement and will provide more than a de minimis benefit for worker health." The Court further explained, "(n)aturally the force of the evidence and argument that OSHA must offer to defend its choice will vary with the force of the proponent's evidence and argument." Id at 1271.

In this final rule, based upon the record evidence, OSHA is adopting certain regulatory recommendations made in the earlier rulemaking, is rejecting other recommendations, and is issuing other provisions which are based on, but are altered versions of yet other recommendations in the earlier rulemaking. In addition, new, different and expanded provisions also have been urged for adoption by participants in this rulemaking. These participants represent labor, public interest and industry interests. The Agency is adopting, rejecting and changing these recommendations as well.

A large portion of this preamble is devoted to the Agency's explanations of these regulatory decisions. OSHA believes that its reasons when it has adopted or has not adopted recommended provisions are well supported by the evidence and that the reasons for its choices are stronger than the contrary arguments. In general, OSHA believes that the extent of its burden to refute claims of benefit for a recommended provision depends on the extent of the supporting data. If the data are valid and extensive, OSHA's burden is greater. If however, the claim of benefit is based on opinion, refutation by OSHA need not be grounded in data, but may be based on OSHA's well reasoned and expert contrary opinion.

In sum, OSHA's decision not to adopt recommended provisions to reduce asbestos related risk reflects the Agency's expert judgment, often where available data creates considerable uncertainty, that the provisions would not offer more than de minimis benefit in reducing a still significant risk. Many recommendations were unsupported by data showing benefit. For example, it was recommended to prohibit high speed burnishing of asbestos-containing floor tile. However, the data do not show a measurable reduction of airborne asbestos fiber levels, based on actual fiber counts using such practices. Other recommended provisions simply do not reduce a still significant risk. For example, requiring very low clearance samples (analyzed by transmission electron microscopy) to deregulate all "regulated areas" to assure that EPA/AHERA level of 0.01 f/cc is met does not appear to be necessary to reduce a significant risk to employees. There is an extremely low (although speculative) risk of asbestos related disease estimated at such clearance levels, and, there is evidence that immediate clearance sampling does not predict later concentration levels.

OSHA discusses the recommendations made by participants in the preamble sections which cover the recommended provisions. The following is a list of the major recommendations made by public which are discussed later:

1. Recommendations for a mandatory building inspection program: Recommended by BCTD (Ex. 143, Att. A); Gobbell Hays Partners, Inc. (7–149). Service Employees International Union (SEIU) (Ex. 144); American Federation

of State, County and Municipal Employees, (AFSCME, Ex. 141); ORC, or assume it is asbestos (Ex. 145), SBA, limited to employers whose work duties involve contact with ACM shall assure that all ACM in workplace is identified, need not inspect building areas constructed since 1980.

2. Mandatory notification to OSHA by employers of all removal, renovation, and abatement work: Recommended by BCTD, (Ex. 143, Att. A at 3), The Courdith-Roberts Group, (L7–185); Gobbell Hays Partners, Inc. (7–149).

3. Mandatory use of negative pressure enclosures in regulated areas, except for small-scale, short-duration operations and other limited circumstances: Recommended by BCTD, (Ex. 143 Att A at 5).

4. Mandatory procedures for deregulating regulated areas including mandatory clearance sampling. Recommended by BCTD, (Ex. 143, Att. A at 6); AFSCME (Ex. 141).

5. OSHA accreditation of training and OSHA designated detailed training curricula. Recommended by BCTD (Ex. 143 Att. A at 8)

6. Reduction of PEL below 0.1 f/c. Recommended by Gobbell Hays Partners, Inc. (Ex. 7–149).

7. Require that required protective clothing be impervious. Recommended by Melco, Inc. (L7–187), J.Loften, Asbestos Workers Local Union #16 (Ex. 137).

8. Specific training for maintenance and custodial workers in buildings that contain asbestos-containing material. Recommended by SEIU. (Ex. 144 at 14).

9. Requirement that building owner respond to knowledge of asbestos in building by establishing O&M plan. Recommended by SEIU (Ex. 144 at 17); AFSCME, (Ex. 141).

10. Change in medical surveillance requirements for maintenance and custodial workers in ACM buildings—they exceed the 30 day limit. Recommended by AFSCME, (Ex. 141).

11. Reduce action level to 0.05 f/cc. Recommended by BCTD. (Ex. 143).

12. Reduce STEL to 0.5 f/cc over 30 minutes. Recommended by BCTD. (Ex. 143), also by SESAC and NIOSH (Ex. 7–77, 125).

13. Require most effective respirators feasible in all asbestos work. Recommended by BCTD. (Ex. 143).

14. Require more specific and protective brake repair procedures. Recommended by Clayton Associates, Inc. (Ex. 148).

15. Regulate activities involving "friable" asbestos-containing material differently from those involving "non-friable" asbestos. Recommended by Edison Electric Institute, (Ex. 7–145 , at e.g., 8 for quantity cut-offs for SSSD activities.)

16. A clearance fiber level of 0.04 f/cc was recommended by SESAC who stated that such a requirement was needed to "ensure that the asbestos work area is safe to enter by unprotected personnel after the asbestos work operation is completed." (Ex. 7–77).

Relationship to Indoor Air Quality Proposed Rule

On April 5, 1994 at 59 FR 15968, OSHA proposed a new standard for indoor air quality. The proposed regulation included a clause making brief reference to asbestos. See Paragraph (d)(8) at page 16036. That reference was unintended as OSHA, intends to cover all asbestos issues in the final asbestos rule where full consideration has been given to them. OSHA will not create new requirements in a final Indoor Air Quality Standard that are specifically designed to control asbestos exposures, and will announce that it is withdrawing the asbestos clause in paragraph (d)(8) at the commencement of the indoor air hearing. Accordingly there is no need for parties to submit asbestos-related materials into the Indoor Air record.

III. Summary and Explanation of Revised Standards

These final standards constitute OSHA's response to the remaining issues raised for the Agency's reconsideration by the United States Court of Appeals for the D.C. Circuit. The specific issues raised by the Court are: the establishment of operation-specific permissible exposure limits; the extension of reporting and information transfer requirements; the expansion of the competent person requirement to all employers engaged in any kind of construction work; and, the clarification of the small scale, short duration operation exemption from the requirement to establish a negative-pressure enclosure. For convenience OSHA is summarizing here its response to each of these issues. They are discussed in depth below. Also discussed below are the other changes OSHA has made which are not in direct response to the remand.

Issue 7. Establishment of Operation Specific Exposure Limits: The court remand causes OSHA to consider establishing operation-specific permissible exposure limits to the extent feasible, as needed to eliminate significant risk of illnesses caused by asbestos exposure. OSHA proposed to decrease the PEL to a uniform 0.1 f/cc. OSHA believes that this limit is feasible for most industry sectors to reach most of the time (55 FR 29720). However, OSHA explained that PELs lower than 0.1 f/cc are difficult to reliably measure. However OSHA has followed a more effective approach to lowering exposures for those sections and operations where lower exposures can be achieved. This approach is triggering protective provisions based on the kind of operation undertaken, rather than measured exposure levels. This approach is consistent with some other health standards (e.g., lead, coke ovens).

A major reason for this approach for construction and shipyards is that measured levels of exposure often fail to define risk and are often not received before the work is completed. This was partly explained in the proposal. There OSHA noted that for removal jobs, highly variable amounts of asbestos are generated, "reducing the predictability of exposure levels from one monitoring event to the next. Moreover, measured asbestos levels often cannot be used to determine the need for (specific controls) . . . because of the time required by the laboratory to complete the test and report the results." (55 FR at 29715–16). Thus, it would be unproductive to leave employees unprotected while initial monitoring results are being analyzed; and in many cases, even prompt reporting of exposure levels during the setting up of the controls would not predict exposures during the actual removal.

A significant risk remains at the PEL of 0.1 f/cc, and it is feasible to attain lower levels for some workers exposed to asbestos. OSHA has therefore considered whether to establish different PELs for different operations based on the lowest exposure limits that can feasibly be achieved in those operations and that are needed to eliminate significant risk. OSHA has decided not to do so because the operation-specific work practices mandated in the standard will be a most cost-effective means of assuring that significant risk is eliminated to the extent feasible.

Asbestos has been the subject of extensive rulemaking by OSHA and other agencies, and the operations that expose employees to asbestos are well known and thoroughly studied. Moreover, given the shift away from asbestos products wherever substitutes are available, it appears unlikely that major new uses will be found for asbestos in the future. OSHA has therefore been able to focus its rulemaking effort on evaluating the work practices that will best reduce asbestos exposures in the specific operations that expose workers to asbestos. The result is a standard that

relies heavily on mandated work practices that will, in most situations, result in employee exposure well below the PEL. In effect, the mandated work practices will assure that each asbestos worker is exposed to the lowest feasible level for the operation in which that worker is engaged. This approach was taken in the 1986 construction standard. There, OSHA "tiered" its construction standard "to apply increasingly stringent requirements to those work operations associated with the highest exposures." (51 FR at 23706). Rather than two classifications as in 1986 (small-scale and abatement work), OSHA now divides construction work into four classes and has made additional limited distinctions based on measurable variables such as amount of material disturbed.

Since OSHA's approach assures that each employee is exposed to the lowest feasible level of asbestos, no additional protection would be gained by establishing a series of different PELs for different operations. Such an approach would add cost and complexity to employers' compliance duties and to OSHA's enforcement duties without benefiting worker health. PELs lower than 0.1 f/cc would be particularly unsuitable as compliance criteria because it is difficult to reliably measure lower levels. Because such measurements are unreliable, if lower PELs were established, measurements taken by employers and by OSHA would provide an uncertain basis for determining whether employers have fulfilled their compliance duties. However, both employers and OSHA can easily determine whether the work practices prescribed in the standard are being followed. The mandated work practices thus assure that employees are better protected than a series of different PELs while reducing compliance burdens on employers and easing the agency's enforcement burden. Therefore, rather than set operation-specific permissible exposure limits, OSHA proposed to further reduce risk by requiring certain additional work practices. The operations for which mandatory work practices are required would otherwise result in employee exposure that is significant. OSHA believes that these controls are feasible, reasonable, and necessary.

OSHA also proposed, in the general industry standard, to link the dates when engineering controls would be required to reach the new lower PEL with the EPA Ban and Phase-out Rule. This linkage is no longer an option since the Fifth Circuit Court of Appeals recently vacated the ban and it is not yet clear which asbestos-containing products will no longer remain in commerce, and staged phase-outs of asbestos containing products are not required.

Issue 3. Small Scale Short Duration Definition: The Court asked that OSHA clarify the exemption for "small scale, short duration operations" from the negative-pressure enclosure (NPE) requirements of the construction standard. The negative pressure enclosure requirements are a substantial set of requirements. They include creating a system of regulated areas with a sealed work area under negative pressure, decontamination facilities and procedures, clean room facilities and procedures and shower facilities, and other practices to reduce worker exposure and spread of contamination outside the work area. In that standard, NPEs were required for all removal, demolition and renovation work except for small scale short duration operations.

The Court suggested, based on its view of the Agency's earlier intent, that OSHA limit the exemption to work operations where it is impractical to construct an enclosure because of the configuration of the work environment. In an earlier response to the remand order, published in the **Federal Register** (54 FR 52024, December 20, 1989), OSHA declined to amend the regulatory text on the small-scale, short duration issue, without conducting supplemental notice and comment rulemaking. The Agency explained "that explicitly limiting the exemption to situations where negative pressure enclosures are impractical might not reduce employee risk from asbestos exposure." (54 FR at 52026). OSHA stated that in the supplemental rulemaking, it intended "to discuss the effectiveness and drawbacks of negative-pressure enclosure, glove bags, and alternative control systems; and to specify more clearly under what circumstances various control systems may be used." (54 FR at 5207). OSHA also noted that the small-scale, short duration issue is related to the scope of the "competent person" requirement, which the 1986 standard lifted for operations which conformed to the exception, and thus combined consideration of both issues would be appropriate.

Accordingly, in July 1990, OSHA proposed related changes in both provisions "small scale, short duration" operations would be redefined in terms of general criteria, as well as the 1986 approach of listing specific examples. However, the underlying premise remained the same as in the 1986 standard: i.e. exemptions to the negative-pressure enclosure requirement for removal, renovation and demolition projects and limited to jobs which conformed to specified criteria. "Competent" persons, according to the 1990 proposal, were to be required as supervisors on all asbestos-related construction worksites, instead of as in the 1986 standard, that required competent persons only for non "small-scale, short term jobs." Required training for competent persons, would vary, however, depending on the kind of asbestos- related job needing supervision.

The final provisions resolving these issues, are different from the proposal. Four classes of increasingly hazardous types of construction activity are matched with increasingly stringent control requirements. Class I asbestos work means activities involving the removal of asbestos containing material (ACM) and presumed asbestos containing material (PACM) which is "high risk." Class II asbestos work means activities involving the removal of ACM and PACM which is not "high risk." Class III asbestos work means activities involving repair and maintenance where ACM and PACM is disturbed. Class IV asbestos work means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM. Each class includes work with similar exposure levels and with similar exposure risks. Each has a prescribed set of controls and work practices. Basically only Class I work, high-risk activities, require negative-pressure enclosures. The standard allows other designated proven control systems in limited circumstances and provides for yet-to-be-developed systems if certain backstop provisions are met. As indicated in its earlier responses to the Court, and its public notices of proposed rulemaking, OSHA has evaluated available control technologies and has concluded that the use of negative-pressure control enclosures should be regulated in terms of when they are required rather than when they are not.

In a major departure from the language of both the 1986 standard and the proposal, OSHA is deleting the term "small scale, short duration" from the regulatory text. Instead, the agency is distinguishing high- from lower-risk operations through the use of the classification system described above. Work that was exempted from the negative pressure enclosure requirements in the existing standard because it was of "small-scale, short-duration" are considered to be Class II and Class III work in this amendment.

The agency finds that the term "small-scale, short term" is too limiting, is confusing, and cannot be defined with sufficient precision to serve the purpose of distinguishing high risk asbestos-disturbing activity from activity of reduced risk.

The term is limiting because it focuses on a fraction of the circumstances and criteria which define lower risk work with asbestos-containing material. For example, removing asbestos-containing products like transite panels, likely will not result in significant exposure, even if conducted for more than one day, if there is use of a few simple controls. As much as the scope and duration of the job, the materials themselves, their condition and the work-practices used define hazard potential. OSHA had tried to include these concepts under the "small-term, short-duration" exception in the current standard, by reference to examples. However, the breadth of the examples led the court to observe that "the exception as now worded seems to erase the rule." (838 F. 2d at 1279).

In the 1990 proposal OSHA tried to identify the conditions and operations which separated higher risk work with ACM from lower risk work in its small-scale, short-term definition. Still anchoring the distinction however, was OSHA's belief that the time a job took, and the amount of material involved, primarily determined risk. Based on the record of this proceeding, OSHA now finds that these are relevant, but not exclusive, factors.

OSHA finds also that use of the term is confusing. In 1986, in its list of activities considered "small-scale, short-term," OSHA listed some which are neither small-scale or short-term; but were regarded as lower risk, such as roofing work. To cure this confusion, OSHA proposed, in 1990 to limit the "small-scale, short duration" exemption to a subset of renovation, removal and demolition operations which took less time, and/or involved small areas. Even for these activities a temporal or volume cutoff was difficult to define, and the proposed definition contained numerical criteria, which varied depending on which activity was defined. In addition, it proposed to exempt other activities, such as roofing, regardless of the size of the project, from the negative-pressure enclosure requirement. EPA uses the term "small-scale, short-duration" to describe cut-offs which are much higher than those proposed by OSHA for its reporting requirements for asbestos renovation, demolition and removal work under NESHAPS. And under EPA's worker protection rule which applied to state and local government workers in OSHA non-state plan states, reporting requirements for asbestos "abatement" projects, do not apply to projects involving "less than 3 linear feet or 3 square feet of friable asbestos material." (40 CFR 763.124).

Many objections to the proposed definition were received by the Agency. After reviewing this record, and in light of the variety of interpretations of the term "small-scale, short-duration," OSHA determined that it is inappropriate to use that term as the equivalent of lower risk activities. Once OSHA decided to include other control methods in the "preferred category" for high risk asbestos work, neither a "small-scale, short-duration" definition nor an exemption from negative-pressure enclosure requirement was central to OSHA's regulatory scheme. As explained more fully below, although OSHA no longer uses the term "small—scale, short-term" to exempt activities from universal requirements, OSHA uses the related terms "small-scale" and "reduced exposure potential" as part of a larger classification scheme.

Issue 8. The extension of reporting and information and transfer requirements:

A. Notification to OSHA

OSHA had proposed expanded notification and reporting provisions in response to the Court's remand order concerning two issues. The first is whether OSHA should require employers to give the Agency advance notification of asbestos-related jobs. BCTD, in the 1984 rulemaking had suggested that OSHA should require all construction industry employers to file reports concerning any building demolition, renovation or removal project involving asbestos prior to beginning such a project. Two health enhancing benefits of a notice requirement were advanced by BCTD. One, is the help such information would provide the Agency in targeting inspections. The other is a claimed reduction in risk because of the consciousness-raising and self-education provided by the notice process.

The Court noted that the BCTD proposal would "arguably generate better information for "selecting targets for inspection and that it was based on "uncontradicted (and unanalyzed) evidence of non-de minimis benefits." (relating to compliance enhancement). (838 F.2d at 1278). It remanded the issue to the Agency for further explanation or rebuttal.

OSHA responded in 1990, by proposing a new provision to require employers to notify OSHA in writing prior to engaging in demolition, renovation, and removal operations which are not small-scale, short-term operations. OSHA's proposed notice requirement shared many core elements with EPA's then current and proposed notification requirements under NESHAPS. OSHA noted that "(t)he proposed notification is modeled after the notification requirement concerning asbestos abatement projects that occur in conjunction with building demolition and renovation operations. OSHA noted further that "(e)mployers can satisfy the OSHA (proposed) notification requirement simply by forwarding a copy of the EPA form to the OSHA area office when complying with EPA's asbestos NESHAP." (55 FR at 29731). Both EPA's and OSHA's proposed, notification requirements would exempt less extensive operations. In OSHA's case, the exemption would have applied to small-scale, short-duration operations as otherwise defined in the standard. EPA's cutoffs are annual amounts: 260 linear feet on pipes and 160 square feet on other facility components. OSHA noted that many asbestos jobs would meet the notification requirements of both agencies, however there would be an indeterminate, yet significant number for which EPA notification would not be called for, but OSHA's proposed requirement would apply.

Most public comment opposed the requirement. The major objection was the burden on the employer from completing and mailing the notification form. Further, some commenters questioned the overall usefulness of the notification requirement in promoting compliance (See comments of Shipbuilder's Council of America Ex. 7–2.) BCTD continued to argue for extensive reporting requirements for the reasons stated above. A few other commenters supported its position. (Ex. 7–5, 7–6, 7–34, 7–64, 7–95, 7–118, 7–132, 7–149, 141, 144).

OSHA has carefully reviewed all the comments. Based on the review and subsequent developments, the final regulation scales down OSHA's proposed notice requirements. OSHA is now requiring advance notification of Class I (mainly large-scale removals) only when the employer intends to utilize controls other than a negative pressure enclosure which meets the requirements of paragraph (g) of this standard, and in some circumstances, where modifications of glove bag systems, glove box systems and other control systems described in paragraph (g) are made.

There are a number of reasons for OSHA's decisions. OSHA believes that

the potential benefits in direct risk reduction from a separate OSHA reporting requirement are unlikely. There are already extensive EPA and state reporting requirements which OSHA requirements would partly duplicate. The EPA and state requirements already create any incentive to comply that such reports could create. Similar OSHA reports would not increase this benefit. Information which may be useful to OSHA in targeting inspections can be retrieved by information-sharing with the EPA while avoiding overlapping reports. OSHA notes that the Paperwork Reduction Act requires that federal agencies avoid clearly duplicative reporting requirements. Various comments challenge the value of duplicative requirements (e.g., Ex. 7–17, 7–20, 7–22, 7–28, 7–39, 7–46, 7–47, 7–50, 7–54, 7–72, 7–74, 7–76, 7–77, 7–78, 7–79, 7–81, 7–86, 7–87, 7–88, 7–89, 7–102, 7–103, 7–108, 7–112, 7–125, 7–133, 142, 147). Thus, although OSHA's and EPA's reporting requirements are only partially duplicative, these considerations have influenced OSHA's decision not to require extensive pre-job reporting. OSHA is concerned that in reviewing the volume of reports which may be spawned by a separate OSHA requirement which exceeded the EPA requirements would strain OSHA area offices enforcement resources and drain such resources from other enforcement efforts. However, OSHA finds that advance reporting is appropriate where information is related to new or modified control methods for Class I work. In such cases, heightened attention to the data supporting their use will result from the requirement to send them to OSHA.

BCTD's contrary view that compliance would be enhanced was based in part on its contractor's report, submitted after the 1984 hearing. The report estimated that an advance reporting requirement would reduce "the number of workers with TWA exposures over 0.1 f/cc" up to 30% in drywall removal and demolition, and lesser amounts in other construction work. These estimates were based on the opinions of a seven person "focus group" which included three representatives of member unions of BCTD. No methodology was presented for deriving these quantitative estimates, and no supporting data has been submitted in either rulemaking (see brief Ex. 143 at 198). The Court referred to the report in its decision as uncontradicted, but that was because it was submitted late in the rulemaking procedures.

The Agency believes based on its experience that these estimates of specific quantifiable benefits are speculative. But more importantly, the now-existing EPA and state reporting requirements and OSHA's use of that data for targeting inspections will achieve those benefits without duplicative reporting requirements. Further, OSHA made various changes to the final standard which will also achieve some of these benefits. These include the expanded provisions on hazard communication, which will alert employees in all asbestos renovation, removal and maintenance work that presumed asbestos containing material is present; that require competent persons to evaluate the work site before work is begun, by informing employers that OSHA is setting up information sharing systems with EPA to access employer notices sent to that Agency, and that require employers who use new and modified control systems to notify OSHA.

Help for OSHA in targeting inspections from the submission of advance reports is the other claimed benefit from a reporting requirement. Some participants claimed that because pre-job reporting was helpful to EPA in targeting its inspections for compliance with NESHAP requirements, an OSHA pre-job reporting would similarly benefit this Agency. EPA did not testify at the hearing, but available information shows that its reporting system provides useful information to that Agency's enforcement program. NESHAPS reporting is made mostly to 45 state agencies, delegated by EPA to implement the asbestos NESHAP. Reporting in EPA Region II, is directly to the Regional Office. These reports are the source of two data bases: the National Asbestos Registry System (NARS), which develops a historical record of asbestos contractors, updated quarterly: and the ACTS system, which is a local data base on the compliance history of each contractor. OSHA is informed that ACTS is a tool that delegated agencies may use for day-to-day tracking of asbestos activities. EPA's evaluation of the reports submitted to it and other information used in its NESHAP enforcement effort constitute a valuable resource for OSHA.

In 1991 both agencies signed a Memorandum of Understanding (MOU) to share information which will aid their enforcement efforts. Pursuant to that MOU, OSHA is developing with EPA an information sharing system based on the reports submitted both to EPA and to various states upon delegation from EPA to access that information to help OSHA target asbestos removal jobs. OSHA also believes that at this time some EPA delegated states, and OSHA state plan states have worked out ways to share notifications. OSHA believes that utilizing the EPA data to assist in targeting inspections will be more effective than duplicative reporting requirements.

The Agency believes, based on its own enforcement experience that a limited notification requirement may enhance compliance in specified circumstances. Employers who choose to use new or modified control technology to reduce exposures in Class I asbestos work, must notify OSHA in advance, using EPA's NESHAP reporting form. Such information about new and/or modified asbestos control technology submitted to OSHA by employers who wish to use it will provide accessible information for the Agency to use to evaluate such technologies. OSHA believes that requiring employers to routinely submit to the Agency their data in support of claims of the effectiveness of new technology will help OSHA, employers and employees and their representatives to evaluate its effectiveness promptly.

Shipyard Employment Standard

One area of the proposed standard to which SESAC raised objection was the requirement that OSHA be notified 10 days prior to initiating work on large scale asbestos operations. In addition to reiterating many of the objections to the provision raised by others, they pointed out that often they must immediately work on ships which enter their shipyards and turn them around quickly and that the delay caused by the notification would be overly burdensome. As OSHA explained above, notification of OSHA is required only when Class I operations are undertaken and alternate methods of control, other than the negative-pressure enclosure methodology, is to be employed. This provision applies both in the construction and shipyard employment standards.

B. Notification of Other Employers and Subsequent Owners

The Court remanded the issue of whether OSHA should, as recommended by BCTD, require employers contracting asbestos-related work to establish, maintain and transfer to building owners written records of the presence and locations of asbestos or asbestos products, in order to facilitate identification and prevention of asbestos hazards. As noted in the 1990 remand proposal, the Court remanded this issue so that the Agency may reach

"its own judgment on the issue" of whether it was legally empowered to adopt such a requirement (See *BCTD* v. *Brock*, supra at 1278). OSHA concludes that BCTD has made a persuasive case for the need to expand the notification provisions to other employer and building owners and from them to subsequent employers with exposed employees. This is a necessary way to informing subsequent employers that their employees are at risk of asbestos exposure and of the need to take appropriate precautions. Requiring building owners to maintain and provide this information is by far the most effective way of notifying employers of exposed employees who are doing work many years after the asbestos was identified.

OSHA has developed an information transfer scheme concerning the presence of asbestos in buildings and structures which may present a hazard to employees which is more comprehensive than the recommendation of BCTD. The approach places the primary compliance burden on the building and/or facility owner, even though the employees at risk may not be the owner's direct employees. Thus, this final standard confirms OSHA's tentative view in the proposal, that it has authority to require building owners who are statutory employers to take necessary and appropriate remedial action such as notifying other employers, to protect employees other than their own (see 55 FR at 29729).

The proposed hazard communication provision limited the building owner's communication obligations to "available" information concerning the presence and location of asbestos. Now, in the final standard, the building owner must communicate his knowledge of the presence and location of ACM, based on "available" information, and, new to the final standard, of the presence and location of certain high risk materials, which are presumed to contain asbestos (PACM), unless the building was constructed or renovated after 1979 or is rebutted using laboratory analysis. Further details of this provision are spelled out later in this preamble.

Issue 9. Competent Person. The Court remanded to OSHA to determine whether employers engaged in any kind of asbestos related construction work should be required to designate "competent persons" to oversee safety measures, or whether, as in the 1986 standard, employers should only be required to designate trained "competent persons" for asbestos removal, demolition, and renovations operations that are not small-scale, short duration. The court requested that OSHA either expand the "competent person" requirement or provide a more persuasive explanation of its refusal to do so.

OSHA proposed in 1990 to expand the requirement. Under the proposal, supervision of all asbestos construction worksites by a "competent person" would be required; the training of a competent person would be keyed to the kind of asbestos operation. However, the proposal left undecided whether onsite, continuous supervision of all asbestos-related work would be required for all asbestos work. The final standard resolves these issues. A "competent" person, as defined in the general construction standards, must supervise all work under the asbestos construction standard. That person must be "capable of identifying existing asbestos * * * hazards in the workplace, and has the authority to take prompt corrective measures to eliminate them * * *" 29 CFR 1926.58[b].

OSHA reiterates its statement in the proposal that "all construction site employees would benefit from the presence of a competent person to oversee asbestos-related work" (55 FR at 29726). However, the need for on-site supervision varies with the hazard potential of the work undertaken. All workers performing Class I construction work must have continuous access to an on-site supervisor, who meets the training requirements for designation as a "competent person" under this standard. Supervision for Class II and III work does not always require a continuous on-site "competent person," therefore the standard requires inspections at "sufficient" intervals and at employee request. Supervision of installation of asbestos containing construction materials and Class IV work must also be accomplished by complying with the "generic" requirement for "frequent and regular" inspection [Paragraph (0)(2)].

Training for "competent persons" can be accomplished in a number of ways and meet the standard's performance requirements. For Class I, II and III work, the "competent person" must take a course such as a course under the EPA Model Accreditation Plan for accredited contractor/supervisor, project designer or management planner course; or their equivalent in content, duration, and criteria for success. Class IV work may be part of larger construction projects, in which case the competent person trained to supervise the project should supervise the on-site cleanup activities which constitute the Class IV work.

Explanation of Provisions of the Final Standards

The following is a provision-by-provision discussion of the revised asbestos standards. Thus all the provisions in all three standards: general industry, construction and shipyard employment, relating to a topic will be discussed under the heading for that topic. For example, under the *scope* heading, the scope of the general industry standard will be first discussed, then the scope of the construction standard, and finally the scope of the shipyard employment standard. Similarly, under the *methods of compliance* heading, the provisions in each standard relating to that topic will be discussed. Where a discussion applies to all three or to two of the separate standards it will be so noted and will not be repeated for each standard. OSHA believes that this format will help the public understand where and why the various standards contain different provisions relating to the same subject matter. Further, it will avoid repetition in explanations where a common policy rationale applies to more than one asbestos standard.

(1) Scope and Application

Paragraph (a). General Industry Standard. 29 CFR 1910.1001. The general industry standard covers all activities (except agriculture), covered by the Act which are not otherwise covered by the construction asbestos standard, 29 CFR 1926.1101, and the new shipyard employment standard, 29 CFR 1915.1001. Consequently, marine terminals and longshoring would be covered by the general industry standard if asbestos were being loaded, unloaded or stored. The asbestos construction standard, in existence since 1986, lists activities which it covers. This includes construction activities though they may take place at a factory or agricultural premises. The new shipyard employment standard, likewise lists its covered activities.

Formerly, the general industry standard had been considered the generic asbestos standard. However, because of dramatic changes in the market for asbestos containing products, the standard now covers only four industry segments, three of which are distinct from each other, and all are diminishing in volume and employee population. Brake and clutch repair is the activity engaged in by the largest group of asbestos exposed workers, although most of them are exposed sporadically and at low levels. Next largest is custodial workers who do not perform their duties as part of

construction activities, but clean surfaces, sweep, buff and vacuum floors and wash walls and windows in manufacturing plants and a wide variety of public and commercial buildings. Although in the preamble to the proposal and throughout this proceeding OSHA and most commenters had treated these workers as part of the construction work force, OSHA concludes that pure custodial work is not a construction activity, and should be regulated under the general industry standard. However, to avoid misinterpretation or for purposes of clarity of duties to affected parties, OSHA also is including provisions protecting custodial workers who may unknowingly contact asbestos-containing material in the construction and shipyard employment standards. In this way, there will be no advantage to interpreting coverage under any one of the asbestos standards, rather than another.

The primary and secondary manufacture of asbestos containing products, completes the roster of identifiable general industry sectors. Once, along with installers of asbestos-containing products, the core of the asbestos-exposed work force, asbestos-containing product manufacturing employees are rapidly dwindling in number. OSHA expands on this theme its on economic analysis later in this document. At the time of the proposal, EPA had prohibited, at three stated intervals from August 1990 to August 1996, the future manufacture, importation, processing and distribution in commerce of asbestos in almost all products (54 FR at 29460, July 12, 1989). Subsequently the ban was overturned by the United States Court of Appeals for the Fifth Circuit. EPA has interpreted the decision as invalidating only those portions of the ban for products that were manufactured or imported at the time of the decision. Despite the remaining legitimacy of manufacture and use of asbestos-containing products, the industries which make and maintain them and the employees who are employed in those industries are declining rapidly and dramatically.

Paragraph (a) Construction Standard. 29 CFR 1926.1101.

The construction standard covers (but is not limited to) the following activities involving asbestos: demolition, removal, alteration, repair, maintenance, installation, clean-up, transportation, disposal, and storage. It has been redesignated 29 CFR 1926.1101 to reflect the reorganization of health standards covering construction made June 30, 1993 (58 FR 35076). The scope and application remain generally unchanged from the proposal and earlier standard. However, 3 issues arose. First, new language, proposed in 1990 is retained in the final. "* * * coverage under this standard shall be based on the nature of the work operation involving asbestos exposure, not on the primary activity of the employer." This point was made clearly in the preamble to the 1986 standards; however, it was not specifically stated in the regulatory text and subsequently some confusion arose among the regulated community. Therefore, it is included as a clarification of the intended application of the standards. Asbestos work which involves removal, repair, maintenance or demolition is therefore explicitly regulated by the construction standard even if such work is performed within a facility otherwise regulated under the general industry standard.

Certain commenters stated that maintenance and custodial work should not be regulated by the construction standard, because they are not construction operations. OSHA notes that it has made a distinction between maintenance and custodial work, that maintenance work is covered in the construction and shipyard employment standards, and that custodial work is covered in all three standards, when it is incidental to work otherwise covered by a standard.

Naturally Occurring Asbestos in Soil: Prior to the publication of the 1990 asbestos proposal, OSHA received submissions describing asbestos deposits which occur as natural formations in the U.S. and that when disturbed, for example during earthmoving projects or during mining operations, drilling, blasting or sawing operations, the asbestos in the deposit can become airborne and expose workers to significant levels of asbestos fibers (Ex. 3–10, 3–11). The Agency proposed to clarify that such activities were covered under its asbestos construction standard and that methods of control were to be employed to avoid worker exposure during disturbances of naturally occurring asbestos deposits. OSHA sought additional information regarding any additional provisions it would adopt to protect workers engaged in these activities. In the proposal, the Agency also requested any information on appropriate methods to use to determine the presence of asbestos in soils, the effectiveness of wet and/or other methods to control worker exposures and information on effective decontamination methods for exposed workers.

There were relatively few comments received on this issue. Some felt that asbestos in soil resulted in negligible exposures and that wetting to prevent fugitive emissions during earth moving would be sufficient control (e.g., Ex. 7–6). Another participant said there was a lack of control technology and called for further study to determine the extent and location of problems (Ex. 7–63). The industrial hygienists who had raised the issue of worker exposure to naturally occurring asbestos, described the occurrence of asbestos in the soil of Fairfax County, Virginia (Ex. 7–143). They reported that water misting during disturbance of asbestos-containing soils was effective in controlling exposures. They recommended the use of negative pressure air purifying respirators, protective clothing and showers to control exposures.

OSHA finds that the record indicates that certain construction sites in mostly well-defined areas contain deposits of naturally occurring asbestos. In such areas, airborne asbestos during earthmoving activities may result in significant exposures. In such cases, wetting of the excavation site, often required by local authorities, should be sufficient to suppress measurable airborne asbestos concentrations. Information regarding the presence of asbestos in the vicinity of construction sites may be available from state environmental agencies, the United States Geological Survey, and the Bureau of Mines.

In the absence of information which is readily available showing asbestos contamination of soil in the immediate vicinity of a construction site, the employer is not required to take any action under this standard.

Paragraph (a) Shipyard Employment Asbestos Standard. 29 CFR 1915.1001.:

Workers engaged in shipyard industry activities, i.e. shipbuilding, ship repair, and other work in shipyards, who are exposed to asbestos have been protected by inclusion in 1986 general industry and construction standards published in 1986. Like in other non-construction industries, OSHA intended employees working in shipyards to be protected by the general industry standard, except for those operations which were specifically listed as covered by the construction standard, i.e. renovation, removal, demolition and repair.

In 1988, OSHA convened the Shipyard Employment Standards Advisory Committee (SESAC), comprised of members from labor, private industry, state and federal government, and professional and trade associations. The Committee's charter directed it "to develop a single set of comprehensive health and safety standards for Shipyards."

In the 1990 NPRM, OSHA sought information and comment on how best to provide equivalent protection to workers engaged in shipyard activities. The Agency noted that although it had considered these operations to be regulated under the general industry standard in the 1986 rulemaking, subsequent considerations led OSHA to observe that many shipyard industry activities are construction-like in nature.

In response, SESAC drafted alternative regulatory text which it submitted to this rulemaking docket with the recommendation that it be adopted as a vertical asbestos standard for shipyards (29 CFR 1915, Ex. 7–77). The Committee stated: "Maritime is neither general industry nor construction—it is *maritime*. "This committee was formed by the Secretary of Labor with the objective in its charter to "recommend * * * one comprehensive set of standards* * *for the shipbuilding, ship repair and shipbreaking industries* * *" (Advisory Committee Charter).

Additional comment and testimony on this issue was submitted during the rulemaking. For example, Charles Sledge, Jr. of the Norfolk Naval Shipyard in his testimony stated that he did not feel that shipyard industry work meets the definition of construction work defined in 29 CFR 1910.12 (Ex. 28). Although he preferred keeping shipyard industry operations under the general industry asbestos standard, he recommended that OSHA apply the SESAC-recommended standard to shipyard activities rather than the construction asbestos standard. He pointed out that most asbestos work in shipyards takes place in fixed locations and does not have the transient nature of true construction work. Mr. Sledge also felt that shipyards have developed ways to stay below the PEL and that any change would result in requiring expensive alterations of facilities, and a need for additional training.

Several commentors including F. Losey of the Shipbuilders Council of America (Ex. 7–2), D. Knecht of Litton Ingalls Shipbuilding (Ex. 7–22), and C. Klein of Newport News Shipbuilding (Ex. 7–71) encouraged OSHA to adopt the SESAC-recommended regulatory text for shipyards (Ex. 7–2).

J. Collins of Naval Operations objected to OSHA's proposal to apply the construction asbestos standard to shipyard industry because he considered some of the provisions infeasible on vessels (Ex. 7–52). In his opinion the construction standard requires showers be located at the entrance to the regulated area and that this was not reasonable on small ships like submarines. Other comments, (apparently by others) in this submission expressed the view that shipyard industry activities should be regulated under the construction standard since they are often identical to construction work. To the same effect see Ex. 7–52.

BCTD stated in its testimony that:

> * * * [It] agrees with OSHA that, because the manner in which maritime employees work with and are exposed to asbestos is similar to the experience of construction employees, the provisions of the construction standard should apply in that industry. In particular, whenever the likelihood exists that asbestos-containing materials will be disturbed in ship repair and renovation, that activity should be conducted under a negative air apparatus. [Ex. 34, p.2]

The rulemaking process revealed that there was confusion in the shipyard industry sector as to which of the standards applied to the various activities within the shipyard. In his testimony, the Chairman of the Shipyard Employment Standards Committee said: "In the case of asbestos, both 1910 and 1926 are both applied in various shipyard operations. This is confusing to the shipyard work force who are required to follow one set of rules one day and another set the next day." (Tr. 337)

In the current revision of the asbestos standards, OSHA has determined that a separate vertical standard for shipyards is appropriate. OSHA understands that many spokespeople for the shipyard industry believe that compliance with OSHA's asbestos standards will be facilitated in shipyards if only one standard applies to those workplaces. Because OSHA wishes to promote compliance, and because the Agency acknowledges that some shipyard conditions are unique, OSHA is issuing a standard that will apply only to shipyard industries. It is neither less nor more rigorous than the general industry and construction standards. How it differs from the two other asbestos standards will be discussed under the topic heading for each substantive provision, in the preamble text which follows. The recommendations will be discussed more fully, following a summary of the relatively small number of comments received by the Agency.

Most provisions in the final shipyard standard include some relevant provisions similar to the revised construction standard. In addition OSHA has incorporated some of the specific recommendations made by the Shipyards Employment Standards Advisory Committee discussed below.

Relatedly, the Great Lakes Carriers Associates, representing fleets on the Great Lakes, wanted assurance that asbestos exposures of seamen aboard vessels will continue to be regulated by the Coast Guard under an existing Memorandum of Understanding between the Coast Guard and OSHA (Ex. 7–8). OSHA does not intend to alter the agreement it has with the Coast Guard. Rather, the maritime standard under discussion concerns shipbuilding, ship repair and ship-breaking activities (29 CFR part 1915, Shipyards).

(2) Definitions

Paragraph (b) General Industry, Construction and Shipyard Employment.

OSHA has deleted some definitions which appear in the 1986 standards, and has added others. Alphabetically, the changes are as follows:

The 1986 standards contained an "action level" of 0.1 f/cc, one half the PEL of 0.2 f/cc. The action level provides a "trigger" for certain duties, such as monitoring, medical surveillance and training. The Court of Appeals for the District of Columbia Circuit instructed OSHA to consider reducing the action level to 0.05 f/cc should the PEL be reduced to 0.1 f/cc. In most single-substance air contaminant standards it has issued, OSHA has set an action level equal to half the PEL. The action level triggers duties of monitoring, medical surveillance, and training, and assures that workers who are not exposed at or above the PEL but who may nevertheless be exposed to levels that present a risk to their health receive a degree of protection. The action level thus helps to reduce residual risk that may remain at the PEL.

In these standards, OSHA has taken a different approach to protecting workers exposed to levels of asbestos below the PEL. Instead of a numerical action level, employer duties involving training and medical surveillance are triggered by exposure to ACM or PACM or by the type of work being done. Additionally, work practices also are required regardless of measured exposure levels. OSHA considers this approach to better protect employees than an action level, which triggers training and medical surveillance duties based on monitoring results. OSHA's approach is particularly appropriate for asbestos because in many cases, asbestos levels below the PEL cannot be reliably measured, and duties tied to an action level might therefore be triggered by measurements of dubious accuracy.

In the 1990 proposal, OSHA did not propose an action level based on its tentative conclusion that workplace

asbestos concentrations below the PEL could not be reliably and reproducibily measured (55 FR 29722). The Agency asked for comment on the advisability of setting an action level of 0.05 f/cc, and specifically asked whether the methodology for measuring airborne asbestos levels had advanced sufficiently to allow reliable and reproducible measurements at that level. Evidence subsequently submitted to the rulemaking record indicated that levels as low as 0.05 f/cc could not be consistently measured reliably. The rulemaking reinforces OSHA's tentative conclusion that workplace asbestos levels of 0.05 f/cc cannot be measured reliably (see NIOSH Tr. 215, SESAC Tr. 345). Because employers cannot obtain reliable and reproducible measurements of airborne asbestos levels at concentrations of 0.05 f/cc, it would be infeasible to base training and medical surveillance requirements on worker exposure to asbestos at such a level. OSHA therefore declines to establish an action level of 0.05 f/cc. OSHA recognizes in some circumstances the general advantages of an action level, and if future monitoring technology is developed which would allow reliable, consistent determinations at lower fiber levels, OSHA will reconsider whether an action level would be appropriate for the asbestos standard and whether action under section (6)(b)(7) of the Occupational Safety and Health Act which directs OSHA to "make appropriate modification in the * * * requirements relating to * * * monitoring or measuring * * * as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard" is appropriate.

The agency has, however, included provisions that require training and medical surveillance of employees exposed below the PEL. Thus, like standards that contain an action level, these standards use training and medical surveillance to reduce the residual significant risk that remains at the PEL. The general industry standard requires that all employees who work in areas where ACM or PACM is present be given a prescribed level of awareness training. The construction and shipyard standards require training of all workers who install asbestos-containing products and all workers who perform Class I, Class II, Class III, and Class IV work. These training requirements assure that all employees who are potentially exposed to more than de minimis concentrations of asbestos can recognize conditions and activities that can lead to asbestos exposure, know of the hazards associated with asbestos exposure, and are trained to utilize the means prescribed by the standard to minimize their exposure.

With respect to medical surveillance, the construction and shipyard standards require medical surveillance of all workers who, for a combined total of 30 days per year or more, engage in Class I, II, or III work, or who are exposed above the PEL or excursion limit. Additionally employees who wear negative pressure respirators are provided with medical surveillance. The general industry standard requires medical surveillance of all workers exposed above the PEL or excursion level, with no 30-day per year limitation. In crafting these provisions, OSHA has attempted to assure that those workers for whom medical surveillance will provide relevant information and benefit are entitled to it. In construction and shipyard work, employees who do not engage in Class I, II, or III work are unlikely to be exposed above 0.05 f/cc (the potential "action level") because the work practices mandated in the standard should result in negligible asbestos exposure to workers who do not specifically engage in asbestos-related work. Employees who engage in only Class IV work also should not be exposed above 0.05 f/cc because of the lower asbestos exposures associated with such work. OSHA therefore believes that the construction and shipyard provisions target medical surveillance where it is needed.

In general industry, the vast majority of workers who are exposed below the PEL will also be exposed below 0.05 f/cc. The work practices mandated for brake and clutch repair, by far the largest general industry segment subject to the standard, should result in virtually all such workers being exposed below 0.05 f/cc. Another large general industry segment, custodial workers, will also be generally exposed below 0.05 f/cc. While some small number of workers in both categories as well as in the manufacturing of asbestos products may be exposed between 0.05 f/cc and 0.10 f/cc on some days, the difficulty of obtaining reliable and reproducible measurements at those levels makes it difficult to identify those workers accurately. Therefore, if medical surveillance were triggered by exposure above 0.05 f/cc, the employees subject to such surveillance would likely be chosen on the basis of the vagaries of the monitoring process rather than on any realistic assessment of the risk that they face. OSHA therefore concludes that it would be infeasible, and would not reduce significant risk, to require medical surveillance for workers in general industry exposed below the PEL or excursion limit.

David Kirby of the Oak Ridge National Laboratory stated his belief that:

> I'm not sure if the analytical methodology will be able to support this due to the level of accuracy that's normally associated with trying to take samples under the normal procedures at that level." (Tr. 105)

NIOSH too testified that "[i]n NIOSH's judgment, the establishment of a PEL or an action level below 0.1 fiber per cc for most industrial or construction work sites would be difficult at this period of time" (Tr. 215). Additional doubt was voiced by the chairman of the Shipyard Employment Standards Advisory Committee, "* * * an action level, that is 0.05 fibers per cc, is not appropriate or reasonable due to inconsistencies and non-reproducibility with the sampling and analytical methodology" and noted concern that shipyard environments were especially likely to have high levels of background dust which could overload sampling devices, making determinations at that level more difficult (Tr. 345). Other commenters supported the proposed deletion of an action level (Ex. 7–2, 7–39, 7–99,7–104, 7–120, 7–146).

Asbestos

In 1992 OSHA amended the definition of "asbestos" from the 1986 standards. The non-asbestiform varieties of the minerals actinolite, tremolite and anthophyllite are no longer included in the definition of asbestos. In 1986 OSHA determined that although tremolite, actinolite and anthophyllite exist in different forms, all forms of these minerals would continue to be regulated. Following promulgation of the rule, several parties requested an administrative stay of the standard claiming that OSHA improperly included non-asbestiform minerals. A temporary stay insofar as the standards apply to the non-asbestos forms of tremolite, actinolite and anthophyllite was granted and the Agency initiated rulemaking, proposing to remove these forms from the scope of the asbestos standards. Following a public comment period and public hearing, OSHA issued its final decision to delete non-asbestiform tremolite, anthophyllite and actinolite from the scope of the asbestos standards (57 FR 24310, June 8, 1992). The Agency, in evaluating the record, found that "evidence is lacking to conclude that non-asbestiform tremolite, anthophyllite and actinolite present the same type or magnitude of health effect as asbestos," and that the failure to

regulate them as asbestos does not present a significant risk to employees.

Classification of Asbestos Work (Classes I–IV)

In the Construction and Shipyard Employment Standards, OSHA is adding definitions for four classes of activities which trigger different provisions in the standard. Those activities presenting the greatest risk are designated Class I work, with decreasing risk potential attaching to each successive class. The Construction and Shipyard Employment Standards regulate Class I, II and III work; all three standards regulate Class IV work.

"Class I" work is defined as activities involving the removal of thermal system insulation and sprayed-on or troweled-on or otherwise applied surfacing ACM (asbestos-containing material) and PACM (presumed asbestos-containing material); "Class II asbestos work" is defined as removal of ACM or PACM which is not TSI or surfacing ACM or PACM; "Class III asbestos work" is defined as repair and maintenance operations which are likely to disturb ACM, or PACM; Class IV operations are custodial and housekeeping operations where minimal contact with ACM and/or PACM may occur.

Class I asbestos work involves removal of surfacing materials sprayed or troweled or otherwise applied to surfaces, and removal of thermal system insulation. Surfacing materials include, for example, decorative plaster on ceilings or acoustical ACM on decking or fireproofing on structural members. Thermal system insulation includes, for example, ACM applied to pipes, boilers, tanks and ducts. Based on the record, OSHA has determined that the prevalence of these materials and their likelihood of significant fiber release when disturbed, requires rigorous control methods which OSHA has set out in the standards.

Class II asbestos work involves removal of any other asbestos-containing material—which is not TSI or surfacing ACM. Examples of Class II work are removal of floor or ceiling tiles, siding, roofing, transite panels. EPA refers to these materials as "miscellaneous ACM" in the "Green Book." (Ex. 1–183) Work practices and other control measures to be employed in removing these materials are discussed later in this preamble under the methods of compliance section.

Class III asbestos work are defined as repair and maintenance activities involving intentional disturbance of ACM/PACM. Class III is limited to incidental cutting away of small amounts (less than a single standard waste bag) of ACM/PACM, for example, to access an electrical box for repair.

The first three classes of asbestos work are intended to cover the kinds of asbestos work which under the 1986 construction standard were designated "asbestos removal, demolition, and renovation operations," including "small-scale, short-duration operations, such as pipe repair, valve replacement, installing electrical conduits, installing or removing drywall, roofing, and other general building maintenance or renovation."

The classes are exclusive. For example, the stripping of 50 linear feet of thermal system insulation, which has not been positively identified as non-asbestos containing material is Class I, for it is the removal of PACM. Repair of a valve covered by ACM is Class III, since "removal" is not taking place. Removal of roofing material containing ACM is Class II, since roofing material is not high-risk ACM. OSHA believes dividing activities by "Classes" will be clearer than the prior system in the 1986 standard which prescribed different precautions for "small scale, short duration work," which it then defined by example. As noted in several places in this document this was confusing to employers, to the Court and to OSHA itself. A more extensive discussion of the "Class" system of designating work with asbestos-containing materials is contained in the discussion on "Methods of Compliance" provisions later in this preamble.

Class IV work is defined as maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM. This includes dusting surfaces, vacuuming carpets, mopping floors, cleaning up ACM or PACM materials from thermal system insulation or surfacing ACM/PACM. Workers may contact ACM or PACM when performing a wide variety of routine jobs that result in incidental disturbance, such as changing a battery in a smoke detector attached to a ceiling containing ACM or PACM, polishing floors containing asbestos, and changing a light bulb in a fixture attached to an asbestos containing ceiling.

For custodial work, the Class IV characterization applies to situations where there is an indication that surfaces are contaminated with ACM or PACM. One indication would be identification of the ACM or PACM sources of the debris or dust; such as visibly damaged, or degraded, ACM or PACM in the vicinity. Visibly damaged, degraded, or friable ACM or PACM are indications that surface dust could contain asbestos, and Class IV protection applies. OSHA requires in (g)(9) that such dust or debris be assumed to be ACM or PACM. Another indication could be an analytical test to determine whether the surface dust itself contains asbestos. Since dust of carpets may not be visible, visible dust on other surfaces along with the presence of ACM/PACM nearby would indicate that cleaning the carpet is Class IV work.

The general industry standard also includes requirements for maintenance and custodial operations which mirror Class IV requirements in the construction standard. These would apply to activities which are not traditionally viewed as construction activities, and which, as contended by certain participants in this proceeding, may not be covered by the Construction Safety Act (40 U.S.C. 333). As further discussed in the preamble discussion relating to paragraph (a), Scope and Application, examples of these activities are clean-up in areas where asbestos-containing dust or debris is present and removing light fixtures located near "high risk" surfacing material.

Some Class IV work was covered by the earlier standards, yet the coverage was incomplete. The general industry standard regulated housekeeping activities, and housekeeping activities were also included in the construction standard to be covered if they were part of a construction job. Precautionary maintenance guidelines to avoid disturbing ACM were addressed in Appendix G of the construction standard. OSHA believes that the switch from the regulated "housekeeping" activities to the Class IV definition is clearer and reduces loopholes. The custodial activities covered in either event can clearly create asbestos dust and expose custodial employees to that dust. Data in the record show that custodial activities can produce not insignificant asbestos exposure levels. Therefore, the work practices required to reduce that dust are clearly necessary to reduce significant risk to custodial workers.

By establishing a Class IV, OSHA is rejecting various recommendations that some activities, potentially involving asbestos disturbance, would result in *de minimis* risk, and as such should not be regulated (See further discussion concerning Methods of Compliance). The new definition of Class IV work, the removal of the non-mandatory appendix, and coverage of these activities both under general industry standard and the construction standard and shipyard employment standards

clarify the standards' application to such work.

OSHA requested comments on setting a cut-off for asbestos-containing material with minimal asbestos content. There was overwhelming support for a 1% cutoff for ACM which would be consistent with EPA rules. The Hazard Communication Standard labeling and training provisions require labelling of materials which contain more than 0.1% asbestos. EPA defines asbestos containing material as: "Any material containing more than one percent asbestos." (NESHAP and Green Book p. 30). OSHA has no information to indicate what proportion of building materials fall into the category of containing more than 0.1% and less than 1.0% asbestos. EPA has listed building materials by their asbestos content and among those included on the list, only surfacing ACM ranged down to 1% (and up to 95%) (EPA "Purple Book," Ex. 1–282). Some participants, including NIOSH have expressed concern that even 1% may be below the accuracy level for optical microscopic methods. (Ex. 7–145, 162–39). Among those who dealt with the issue, most supported the 1.0% cutoff, most citing its consistency with EPA (Ex. 7–5, 7–6, 7–21, 7–43, 7–51, 7–74, 7–76, 7–99, 7–106, 7–111, 7–120, 7–137, 151, 162–59, 162–29). OSHA agrees that a cutoff of 1.0% asbestos is appropriate for asbestos containing building materials and has included this value in its definitions of ACM.

Closely Resemble

Included in the construction and shipyard employment standards is a definition for the term "closely resemble," which is the term used in the regulatory text to limit the use of historic exposure data to predict exposures. It is defined as circumstances where "the major workplace conditions which have contributed to the levels of historic asbestos exposure are no more protective than in the current workplace." OSHA's intent is to allow data reflecting past exposures to be used to predict current exposures only when the conditions of the earlier job were not more protective, i.e., employees were not better trained, work practices were not used more consistently, and no more supervision was present.

Competent Person

OSHA has amended the definition of "competent person" in the construction standard and included it in the Shipyard Employment Standard as a "qualified person." The definition is based on the definition of "competent person" in the general construction standard, 29 CFR 1926.32(f), i.e. "one who is capable of identifying existing asbestos hazards in the workplace and who has the authority to take prompt corrective measures to eliminate them," but adds a specific training qualification. The training provisions require a competent person take a course which meets the requirements of EPA's Model Accreditation Plan (40 CFR 763, Subpart E). OSHA believes that specific training is needed so a "competent person" will have adequate knowledge to perform the competent person's responsibilities for Class I and II work. A Class II and Class IV "competent person" must undergo "Operations and Maintenance" (O&M) training as developed by EPA. Further discussion of these issues is found later in this document.

The revised definition deletes from the *definition* a list of duties to be performed by the competent person. Duties are more appropriately set out in other regulatory paragraphs which are prescriptive, rather than in the "definition" section. In response to the court's remand, OSHA has also expanded the scope of the competent persons's duties so that a competent person must supervise all asbestos activities under the construction standard. As noted, these requirements are set forth in other regulatory paragraphs which govern conditions of work in covered activities.

The shipyard employment standard does not use the term "competent person," because that term has a unique definition under Part 1915. OSHA has accepted SECSAC's recommendation that the term "qualified person" should be used to designate a person with the same duties under the shipyard employment standard.

Critical Barriers

OSHA is adding a definition for the term "critical barriers" whose use is required in certain asbestos operations. These are defined as plastic sheeting or equivalent material placed over openings to the work area. These barriers are effective when they seal all openings into a work area. Critical barriers can be other physical barriers sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Disturbance

OSHA has added a definition for "disturbance" to all three standards to distinguish it from removal. In this definition disturbance means any contact with ACM/PACM which releases fibers or which alters its position or arrangement. It also includes operations which disrupt the matrix or render it friable or which generate visible debris from it. A quantitative cutoff of disturbance is given—the amount of ACM/PACM so disturbed may not exceed the amount that can be contained within one standard sized glove bag or waste bag. OSHA believes that certain jobs, e.g., repairing leaking valves, often require asbestos to be cut away to gain access to a component. If the amount of asbestos so "disturbed" is contained in one bag, Class I precautions are not necessary.

Glove Bag

The term "glove bag" is also defined in the standards as a plastic bag-like enclosure affixed around ACM with glove-like appendages through which material and tools may be handled.

Homogeneous Area

The presumption that a material contains asbestos may be rebutted by sampling a "homogeneous" area of the presumed ACM to determine its asbestos content. OSHA has defined "homogeneous area" in much the same way it is defined by EPA as an area of surfacing material or thermal system insulation that is uniform in color and texture.

Industrial Hygienist

A definition for "Industrial Hygienist" is included in the standards as a professional person qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

Initial Exposure Assessment

"Initial Exposure Assessment," including "Negative Initial Exposure Assessment" are terms used in the construction and in the shipyard standards. It means a required assessment by a "competent person" concerning the exposure potential of a specific asbestos job, or series of similar asbestos jobs. A "Negative Initial Exposure Assessment" is such an assessment in which it is concluded that employee exposures during the job are likely to be consistently below the PELs. Assessments must be based on information and data which are allowed pursuant to criteria in paragraph (f). The results of "Initial monitoring," no longer required for each job, should be considered, but do not necessarily constitute an adequate "assessment" if they would not represent all worst-case employee exposures during the entire job.

Modification

Alternatives or modifications to listed control methods are allowed when the employer demonstrates that such a "modification" still provides equivalent worker protection. OSHA does not intend that changes in a control method which decrease the safety margin of a material or omitting a procedure be permitted by calling it a "modification." A "modification" means a changed or altered procedure, material which replaces a procedure, material or component of a required system. For example, a new test proven successful in detecting leaks might be substituted for required "smoke tests." Omission of a procedure or component, or a reduction in the stringency or strength of a material or component is not considered a "modification" under this section.

Presumed Asbestos-Containing Material (PACM)

In all three standards, "presumed asbestos containing material," "PACM" means thermal system insulation and sprayed on and/or troweled or otherwise applied surfacing material in buildings constructed no later than 1980. OSHA has found that these materials are "high risk" if asbestos-containing. OSHA bases this on the record, including the HEI Report which states that "thermal system insulation and surface treatments (fireproofing, acoustical and decorative finishes) stand out in importance for their potential for fiber release and subsequent exposure to [building] occupants" (Ex. 1–344, p. 4–5). Although these materials may have been installed in small quantities after 1980, OSHA finds that their installation is unlikely after that date.

Project Designer

OSHA has adopted a definition like that of EPA for a "Project Designer"—a person who has successfully completed the training requirements for an abatement project designer established by 40 USC 763.90(g).

Removal

"Removal" means all operations where ACM and/or PACM is removed from a building component, regardless of the reason for the removal. It includes those maintenance, repair, renovation and demolition activities where ACM and/or PACM removal is incidental to the primary reason for the project, as well as where removal of ACM and/or PACM is the primary reason for the project. Removal should be distinguished from "disturbance" which includes "cutting away" a small amount of ACM or PACM.

Regulated Area

"Regulated area" is included in all three standards. All three, like the 1986 standards, require the establishment of such an area where the employer believes that the PEL will be exceeded. Now, the construction and shipyard employment standards add that such area must be established also where Class I, II and III activities will take place, regardless of exposure levels. Also, the specific actions required of the employer to demarcate a regulated area are deleted from the definition, and are placed in the appropriate prescriptive paragraph, in this case paragraph (e)(6).

(3) Permissible Exposure Limits

Paragraph (c) General Industry, Construction and Shipyard Standards.

In all three standards, the eight hour time-weighted average permissible exposure limit is changed from an eight hour time weighted average (TWA) of 0.2 f/cc to a TWA of 0.1 f/cc in the revised final rules. As noted in the 1990 proposal and in the preamble discussion above, OSHA's decision to reduce the PEL across the board responds to the Court's directive to consider whether to establish operation-specific exposure limits, since the Court noted that on the record of the 1986 standards, it appeared feasible to reduce the PEL to 0.1 f/cc limit in many industry sectors. OSHA has rejected "operation-specific" PELs for the wide variety of operations that expose employees to asbestos. OSHA proposed and these final standards adopt required operation-specific work practices, in addition to an across-the-board PEL reduction to 0.1 f/cc. OSHA expects that the risk reduction accomplished by this two-pronged approach will be at least as great as would operation-specific PELs. First, the required controls are found to be capable of achieving maximum exposure reduction on an operation-by-operation basis. Second, since OSHA has found that specific work practices are feasible, the Agency expects a higher compliance rate and thus, greater risk reduction than if practices were not specified. Third, in operations where particular controls are specified, the PEL is a backstop; alerting employers where additional controls are needed or closer surveillance is required; in all operations the PEL is a measurable and comparable value, which cannot be exceeded without further action by the employer to reduce exposures.

At the time of the proposal in 1990, the question of whether the proposed PEL reduction would reduce a still significant risk had already been given a tentative answer by the Court. The D.C. Circuit Court of Appeals, in remanding the issue of lowering the PEL to the Agency, noted that based on the 1984 risk assessment, the excess risk stemming from average exposures of 0.1 f/cc "could well be found significant." BCTD v. Brock, 838 F.2nd at 1266." (55 FR at 29714).

In the proposal, OSHA stated that it believes "that compliance with proposed amendments to reduce the PEL to 0.1 f/cc as a time-weighted average measured over 8 hours would further reduce a significant health risk which exists after imposing a 0.2 f/cc PEL" (55 FR 29714, July 20, 1990). OSHA's 1984 risk assessment showed that lowering the TWA PEL from 2 f/cc to 0.2 f/cc reduced the asbestos cancer mortality risk from lifetime exposure from 64 to 6.7 deaths per 1,000 workers. OSHA estimated that the incidence of asbestosis would be 5 cases per 1,000 workers exposed for a working lifetime under the TWA PEL of 0.2 f/cc. Counterpart risk figures for 20 years of exposure are excess cancer risks of 4.5 per 1,000 workers and an estimated asbestosis incidence of 2 cases per 1,000 workers.

OSHA's risk assessment also showed that reducing exposure to 0.1 f/cc would further reduce, but not eliminate, significant risk. The excess cancer risk at that level would be reduced to a lifetime risk of 3.4 per 1,000 workers and a 20 year exposure risk of 2.3 per 1,000 workers. Consequently significant risk would be reduced substantially. However, OSHA concluded therefore that continued exposure to asbestos at the TWA permitted level and action level would still present residual risks to employees which are significant.

The Court did not ask and OSHA did not undertake to review its earlier risk assessment in the proposal. At the hearing in January, 1991, Mr. Martonik, spokesperson for OSHA was asked by Mr. Hardy, representing the Safe Building Alliance (SBA), if OSHA was planning to update the earlier risk assessment as part of this proceeding. Mr. Hardy stated that "a number of parties have suggested to OSHA that its risk assessment from 1984, as relied on in the 1986 final rule, is outdated" (Tr. 30). Mr. Martonik responded that "we will have to consider all information we receive and determine relevance in this rulemaking after the record is closed. (Ibid).

Other parties questioned OSHA's continuing reliance on the 1984 risk assessment. The Asbestos Information Association (AIANA) testified that "OSHA's 1984 risk assessment fails to take into account the scientific community's consensus that chrysotile

exposures hold lower risk than the Agency estimates * * * we do not believe that the risk assessment that is six years old relies on the best available evidence." AIANA requested OSHA to convene experts, as part of this hearing process "to revise its asbestos risk assessment." (Tr. 530), this was the major objection to OSHA's earlier risk assessment. Some participants voiced similar objections. (Ex. 7–88, 7–110, 7–104, 7–120, Ex. 145, 151), while others were of the opinion that chrysotile had the same potency as other forms of asbestos (see Ex. 119 C, 1–136, 125, Att. 6, 143 Att C, 143 Att. D.).

Although as noted above, the issue of the continuing validity of OSHA's earlier risk assessment was not remanded to the Agency for reconsideration, implicit in OSHA's proposal to lower the PEL to 0.1 f/cc is OSHA's determination based on the 1984 risk assessment, that the lower exposure limit is necessary to reduce a still significant occupational risk.

After a comprehensive review of the evidence submitted concerning the validity of the 1984 risk assessment, OSHA has determined that it will continue to rely on the earlier analysis. The Agency believes that the studies used to derive risk estimates remain valid and reliable, and that OSHA's decision to not separate fiber types for purposes of risk analysis is neither scientifically nor regulatorily incorrect.

There are at least three reasons for OSHA's decision not to separate fiber types. First, OSHA believes that the evidence in the record supports similar potency for chrysotile and amphiboles with regard to lung cancer and asbestosis. The evidence submitted in support of the claim that chrysotile asbestos is less toxic than other asbestos fiber types is related primarily to mesothelioma. This evidence is unpersuasive, and it provides an insufficient basis upon which to regulate that fiber type less stringently.

As OSHA explained in the preamble to the 1986 standards,

> * * * to summarize the data on risk differential by asbestos fiber type, human epidemiological studies have suggested that occupational exposure to amphiboles is associated with a greater risk of mesothelioma than is exposure to chrysotile * * * No clear risk differential for lung cancer or other asbestos-related disease has been demonstrated by epidemiological studies. Animal experiments, however, have indicated that chrysotile is a more potent carcinogen than amphiboles when administered by inhalation or intrapleural injection * * * (51 FR at 22628).

OSHA agreed with the testimony of Dr. Davis, who stated that "the evidence cannot answer * * * with certainty * * * if "one fiber * * * of amphibole (is) more dangerous than one fiber * * * of chrysotile." (Ibid).

Second, as stated in the 1986 asbestos standard, even if OSHA were to accept the premise (which it does not), that chrysotile may present a lower cancer risk than other asbestos fiber types, occupational exposure to chrysotile asbestos still presents a significant risk of disease at the revised PEL (See 51 FR 22649, 22652). In particular, asbestosis, the disabling and often fatal fibrosis of the deep portions of the lung, is caused by exposure to all types of asbestos. The evidence on this is strong and no new information has been presented to contradict this. As stated above, OSHA estimated asbestosis risks at 0.2 f/cc exposures as an unacceptably high 5 cases per 1000 workers. Thus, asbestosis risks alone justify the regulation for chrysotile.

Lung cancer risks associated with chrysotile exposures are also high—6.7 lung cancer deaths per 1000 workers exposed to 0.2 f/cc for a full working lifetime. OSHA notes that SBA's witness, Dr. K. Crump acknowledged that "(t)here's not a clear difference, * * * even in humans, for lung cancer * * * in terms of distinguishing the potency of amphiboles vs. chrysotile." (Tr. 4220).

Third, the record shows that employees are likely to be exposed to mixed fiber types at most construction and shipyard industry worksites most of the time. Assigning a higher PEL to chrysotile would present the Agency and employers with analytical difficulties in separately monitoring exposures to different fiber types. Thus, regulating different fiber types at differing levels, would require more monitoring all the time and would produce limited benefits (51 FR 22682).

Consequently, OSHA believes that its conclusion to treat all asbestos fibers as having a similar potency in the occupational setting remains valid. Most of the evidence submitted to the remand rulemaking duplicated evidence submitted to the 1986 standards' record, or was cumulative to the earlier body of evidence. For example AIANA appended its 1988 submission to the EPA, consisting of numerous studies and reports. Some of these documents were considered by OSHA in the prior rulemaking. There, OSHA had stated that the 1983 Berry and Newhouse study of friction materials manufacturing workers which found nonsignificant increases in lung cancer mortality, was inconsistent with other studies showing that low level asbestos exposure resulted in excess lung cancer mortality, because of the relatively short follow up period used (51 FR 22618).

Other studies involved lung burden analyses of mesothelioma victims, apparently showing that the pulmonary content of chrysotile was within the range of the general population, whereas amphibole content was significantly elevated compared to the general population (see e.g. Churg, Malignant Mesothelioma in British Columbia in 1982, Cancer, 2/85, 672). OSHA noted in the preamble to the 1986 rule, that there is a difference in tissue retention which would account for the autopsy results and cited a study by Glyseth et al. (Doc. 33–C, Ex. 312) which supported that explanation. OSHA also noted that "the differential lung retention of various fiber types has been demonstrated in animals," citing a study by Wagner which found that animals exposed to chrysotile fibers developed lung cancer even though a smaller amount of chrysotile was retained in the lung compared to similar tests with amphiboles.

Dr. Weill believed that "these differences in tissue persistence may wholly or partially explain the observations [that exposure to amphiboles are associated with a higher prevalence of mesothelioma] in human * * * population * * *. Non-confirmation of fiber type differences in animal experiments may be related to the much shorter life span * * * [of experimental animals, which would not allow] the effects of varying tissue-persistence to be expressed" (Doc. 33–C, Ex. 99, p.18; 51 FR 22628). Therefore OSHA had reviewed and evaluated in the earlier rulemaking a portion of the evidence submitted by proponents of differential regulation of fiber types, and had rejected the claim that chrysotile should be regulated less stringently.

Some new evidence on the issue of differential risks of asbestos fiber types was submitted by both supporters and detractors of that theory.

In support of the position that chrysotile asbestos exposure is equivalent in risk to amphibole asbestos exposure, BCTD submitted studies which indicated excess mesothelioma cases in workers exposed solely to chrysotile asbestos (see Ex. 119 C, 1–136, 125, Att.6, 143 Att C, 143 Att. D). In support of the opposing claim that chrysotile has reduced carcinogenic potential, AIANA and SBA submitted additional evidence. For example, AIANA submitted the World Health Organization's 1989 working report which recommended that the exposure limit for chrysotile should be reduced to 1 f/cc or below (8 hour TWA), where it was recommended that exposure to

crocidolite and amosite asbestos be prohibited (Ex. 21 A, p. 9). In particular, two papers by Mossman, et. al, are cited as the basis for the claim that a scientific "consensus" believes that chrysotile carries a reduced carcinogenic risk (Ex. 1–153, 151). Thus AIANA states that "since OSHA issued its 1984 asbestos risk assessment, the scientific consensus that chrysotile asbestos poses lesser risks has solidified" (Ex. 142 at 3).

However, OSHA notes that various participants in this rulemaking, including NIOSH and Dr. Nicholson, disputed the existence of such a consensus. Dr. Nicholson and others including Dr. Landrigan, in a letter to Science, (Ex. 1–155), dispute various interpretations of data in Mossman et al.'s paper, and challenge the conclusion that chrysotile asbestos carries little cancer risk. Nicholson et al, point out that human studies show excess lung cancer risk that is proportionate to exposure across all fiber types, and that animal tests confirm these relationships. OSHA believes that the scientific community has not achieved "consensus" on these issues.

Among the studies submitted in support of the lowered risk of chrysotile asbestos, are those of Churg, and others showing that the lung burden of mesothelioma victims is predominantly amphibole, even though high chrysotile exposure levels were reported. As noted above, this line of argument was presented in the earlier asbestos rulemaking, and OSHA had concluded that lung burden studies are inconclusive. Additional response to this argument is provided by Dement who notes that "(t)he biological significance of post-mortem lung fiber burden data has yet to be established. These data are not useful as a predictor of disease for several reasons. Chrysotile is known to split longitudinally and partially dissolve in the lung whereas amphiboles remain in the lungs for years without significant dissolution * * *. Measurements of tissue fiber burdens many years after first exposure may bear no relationship to the carcinogenic events which likely have taken place many years before clinical manifestation of cancer." (Ex. 1–273)

BCTD pointed out in its post-hearing brief, that "Dr. Landrigan testified, while the observation that chrysotile does not last as long in the lungs as other forms of asbestos is not new knowledge (Tr. 1074), there is recent evidence that chrysotile is "the most effective of the three major fiber types at migrating to the pleura, that it is present in substantial amounts in pleural plaques and mesotheliomas, even in circumstances where it is not present or minimally present in the lungs themselves" (Tr. 1074).

The Agency also notes that the HEI report, in summing up its discussion of its literature search of studies examining the issue of the relative potency of chrysotile in inducing mesothelioma, stated: "(t)he evidence that chrysotile rarely causes pleural mesothelioma is not conclusive "* * * and concluded that the absence of mesothelioma in one of the "two cohorts of heavily exposed asbestos workers who worked only with chrysotile * * * seems likely to be due at least in part to chance" (Ex. 1–344 p. 6–23).

HEI concluded that "the mesothelioma risk for chrysotile was an issue of disagreement; some members of the Literature Review Panel held the view that a lower estimate should be recommended, as it would be more consistent with available data. The crucial issues, neither of which can be resolved unequivocally, are (1) what proportion of the mesotheliomas observed in groups such as the U.K. textile workers and the U.S. insulation workers were caused by their exposure to crocidolite or amosite; and (2) whether the best general estimate of the ratio of mesothelioma to excess lung cancer caused by chrysotile is provided by the Quebec miners and millers (about 1:4 or 1:5), or by the South Carolina textile workers handling Quebec fiber (zero)" (Ex. 1–344 p. 6–32).

Thus, although there is some evidence linking chrysotile to a lower mesothelioma rate than some amphibole fiber types, OSHA believes that there is insufficient evidence to show that chrysotile does not present a significant mesothelioma risk to exposed employees. Furthermore, the major disease linked to asbestos exposure, lung cancer, occurs at the same frequency among employees exposed to equivalent doses of chrysotile or to amphibole asbestos fiber types. Indeed, evaluation of all of the evidence indicates that chrysotile asbestos presents a similar significant risk of lung cancer and asbestosis as other forms of asbestos. Since these adverse health effects constitute the majority of diseases related to asbestos exposure, OSHA is still of the opinion that chrysotile exposure should be treated the same as other forms of asbestos.

In addition to contentions that OSHA's risk assessment had overstated asbestos risks because it treated the risks from all asbestos fiber types equally, other contentions were made that the earlier risk assessment may have understated the risks from asbestos, because it ignored evidence of the incidence of pleural plaques, and other asbestos disease which occurred in workers exposed at low levels, primarily as building custodians. The earlier risk assessment in 1984 focused on whether there was a significant risk of cancer and asbestosis at various levels of cumulative exposure. During this hearing, various labor groups stated their position that the presence of pleural plaques in asbestos exposed employees is not only a marker of asbestos exposure, but also an independent "material impairment" because they are associated with a greater risk of lung function impairment and pleuritic pain. Pleural plaques are focal areas of fibrous thickening of the pleura, the membrane lining the lung. Further, suggestions were made that OSHA should reduce its PELS to correspond to these increased risks of "material impairment" which occurred at lower exposure levels (see e.g., Ex. 143 at 35–37).

Evidence submitted during the rulemaking consisted of testimony and studies which in the view of some participants showed lung function decrement and resulting excess disease among workers exposed at low levels. For example BCTD witness Dr. Christine Oliver described various studies and concluded:

> Pleural plaques * * * were a predictor for increased mortality from lung cancer and malignant mesothelioma in subsequent years * * * pleural plaques have also been shown to be associated with decrement in lung function * * * At the very least, pleural plaques are a marker for exposure, sufficient to increase risk for lung cancer and for malignant mesothelioma, and they have also been associated with loss of lung function (Tr. 1035–6).

Dr. Oliver recommended medical surveillance of those exposed to asbestos in their capacity as custodians in buildings.

The studies considered by Dr. Oliver consisted of one involving 120 Boston public school custodians (Tr. 1026) which she conducted and found pleural plaques in 33% (N=40) of the group. Further she noted that in 21% (of the 40, or 12 individuals) there was no known exposure to asbestos outside work as school custodian. In 18% of the group and 17 % of those with no outside exposure to asbestos, she observed a restrictive pulmonary defect, significantly associated with duration of employment as school custodian. Other studies described by Dr. Oliver, in the docket include: a study of 666 New York school custodians, reporting only x-ray data (Ex. 47). For all groups of workers, the lung abnormality seen on x-ray was associated with duration of

work as custodian: a study of 1,117 insulation workers (likely to have had extensive asbestos exposure) by Dr. Irving Selikoff, in which workers were followed for up to 27 years prospectively, in which pleural plaques were found and which were concluded to be predictive of lung cancer mortality (Tr. 1036 and Ex. 124A): a study, by Balmes (Ex. 124 DD, Tr. 1036, Ex. 1–374) of approximately 900 school district employees in California were determined as likely to have been exposed to asbestos. The authors concluded, "More than 11 percent of workers known to have sustained exposure to ACM in school building, without history of exposure to asbestos prior to school district employment, and with at least 10 years of employment with the district had radiographic evidence of parenchymal asbestosis and/or asbestos-related pleural thickening" (Ex. 1–374, p. 547). After adjusting for smoking and age, the relative risk was 1.3 times greater for those with 10 years or more employment compared with those who had just begun working for the school district.

In addition to the occurrence of pleural plaques which are viewed as presenting an independent material impairment of health due to low level asbestos exposures, Dr. Oliver cited other studies which correlated low level asbestos exposure with mesothelioma. Thus, a study by Dr. H. Anderson (Tr. 1032 and Ex. 124 EE, Ex. 1–374 using information on mesothelioma cases from a Wisconsin Cancer Registry, analyzed 359 deaths from 1959 to 1989. Using death certificate occupational information, the researchers hypothesized 41 as likely to have been exposed to asbestos in buildings. For 10 (34%), no other likely source of asbestos exposure was identified. The paper concluded that "individuals occupationally exposed to in-place ACBM are at risk for the subsequent development of mesothelioma" (Ex. 1–374, p. 570).

SBA submitted a critique of these studies which they commissioned by Drs. H. Weill and J. Hughes (Ex. 122). They suggested potential biases in these studies, that Dr. Oliver's study subjects were volunteers, the study had a low participation rate, they had used a non-standard classification system, and did not adequately account for age in relating restriction to lung function. These reviewers concluded that spirometric functional measurements were not related to the presence of plaques and that reduced lung volume could result from other factors. Drs. Weill and Hughes also examined the other studies, and argued that Dr. Selikoff's were "fatally flawed" due to the potential for development of unmeasured changes during the 27 year period of follow-up, and that both the Anderson and Balmes studies failed to adequately adjust for age, smoking and other direct asbestos exposures. Other reports cited by BCTD were dismissed because of potential sources of bias.

Dr. Oliver rebutted these arguments (Ex 143, Attachment F). She argued that she had adequate controls, adequately accounted for age and demonstrated that pleural plaques were significantly associated with both latency and duration of work as custodian in the total group and in the group with no known other exposure, that lung restriction was significantly associated with duration of work as a custodian, and that pleural plaques mark increased risk for lung cancer mortality.

Dr. Levin also responded to the reviewer's criticism of his studies with Dr. Selikoff (Ex. 143, Attachment G). He pointed out that all x-rays had been read by a single reader, Dr. Selikoff, and that there is no evidence that smoking without asbestos exposure increases appearance of the small irregular opacities in the lung seen on the x-rays in their study. He further noted that in his study only actively working custodians were included and were therefore a "survivor" group and would therefore not be expected to report pulmonary dysfunction frequently. He claimed that relatively unexposed subject groups would not be expected to have more than an upper limit of 3% pleural plaques.

Dr. Anderson also responded to the Weill/Hughes comments (Ex. 143, Attachment H). He asserted that the review fails to explain how biases would significantly increase odds ratios in the study, that misclassification often is random and biases toward not detecting a difference between the study and control groups. He also questioned existence of evidence that smoking without asbestos exposure causes pleural thickening or irregular opacities.

The review of available literature, including the studies mentioned above by the Health Effects Institute, resulted in its the estimation that the prevalence of pleural plaques in the general population to be about 5% (Ex. 1–344, p. A2–9). Although HEI advised caution in interpreting the existing studies due to lack of specificity and sensitivity of methods used and couched its conclusions in cautious terms, they concluded: "* * * there is now persuasive evidence implicating asbestos-related pleural disease as an independent cause or indicator of functional impairment and possibly even disability * * * On the individual level, pleural disease may be the only indication of asbestos exposure, may explain symptoms and function impairment, and may predict future deterioration in lung function" (Ex. 1–344 p. A2–12).

OSHA agrees that health effects such as lung function impairment and pleuritic pain would be considered "material impairment," if substantial evidence supports the link to pleural plaques. OSHA concludes that the scientific data indicate that pleural plaques are primarily associated with asbestos exposure, and that they have occurred and still may at relatively low exposure levels.

However, OSHA does not believe that the data are available to permit OSHA to do a separate risk assessment for these effects which would in a major way add to the present assessment. The risk assessment on which OSHA has based its significant risk determinations for the 1986 and newly revised standards, calculated the incidence of mesothelioma, lung and other cancers and asbestosis, diseases based on a substantial amount of both mortality and exposure data. The data concerning lung function decrement and pleural plaques lack exposure information and would make quantitative risk estimates for these health effects less precise than the data for other forms of asbestos-related disease upon which OSHA is relying.

A separate risk assessment is also unnecessary. OSHA believes that the revised regulations are already regulating at the margin of what is feasible, in terms of levels to be achieved, and controls which are required. OSHA has imposed necessary, feasible and well supported work practices for custodial work, which should reduce custodial exposures well below the historic levels (indeterminate) which may have been experienced by the workers studied in the above reports.

More generally, there would be remaining significant risk at this new 0.1 f/cc exposure limit if there were not other provisions to these standards. However, the exposure limit is accompanied by mandated work practice controls and requirements for hazard communication, training and other provisions. Together these will very substantially reduce that remaining significant risk, although the exact amount of that reduction cannot be quantified. In addition, it would be difficult to measure accurately in the industrial setting levels lower than those in these standards. OSHA believes

its approach of setting a PEL which is reliably measurable, yet, imposing work practices and ancillary provisions for operations regardless of measured fiber levels will result in risk reduction well below that expected from just enforcing the 0.1 f/cc PEL. Thus, a lower PEL would not produce significant worker benefit.

(4) Multi-Employer Worksites

Paragraph (d) Construction and Shipyard Employment Standards. OSHA is retitling paragraph (d) "multi-employer worksites." The first provision, the same regulatory text as in the 1986 construction standard, requires that an employer whose work requires the establishment of a regulated area must inform other on-site employers of the asbestos work, and how other employees will be protected from hazards stemming from that work. In addition, new provisions follow which set out the compliance responsibilities of employers on multi-employer worksites.

In 1990, OSHA had proposed more comprehensive provisions governing communication of asbestos hazards among all employers, building and facility owners and employees, in a revised paragraph (d). These final standards expand communication provisions but repositions them in paragraph (k), "communication of hazards." A discussion of those provisions is found below in this preamble under that heading.

Paragraphs (d)(2) and (3) set out the compliance responsibilities of employers on multi-employer worksites. They acknowledge that on asbestos work sites, like other construction sites, employees exposed to a hazard are not always the employees of the employer who created the hazard.

Paragraph (d)(2) incorporates the rules now applied in enforcement actions governing multi-employer construction sites generally, to assure that all employees on such a site receive the protection intended by the standards.(See Gelco Builders, Inc. 6 BNA 1104). The standard explicitly requires asbestos hazards to be abated "by the contractor who created or controls the source of asbestos contamination."

In addition, paragraph (d)(3) sets forth the duties of the employer of employees who are exposed to asbestos hazards, but who did not create the source of contamination. One, such employer may request the contractor with control of the hazard to take corrective action. For example, if there is a breach of an enclosure within which asbestos work is being performed, the employer of employees working outside that enclosure should request the asbestos contractor who erected the enclosure to repair the breach immediately, as required by paragraph (d)(2). If the repair is not made, and if employees working outside the enclosure are exposed to asbestos in more than de minimis amounts, the employer of those employees should either remove them from the worksite pending repairs, or consider his employees to be working within a regulated area and comply with the provisions of paragraph (e) governing exposure assessments and monitoring of employees who work within such areas. If the employer of employees exposed to asbestos because of the failure of controls installed by another contractor, is the general contractor of the construction project, as such he has supervisory control over the entire worksite including the regulated area, and is responsible for violations which could be abated or prevented by the exercise of such supervisory capacity.

Paragraph (d)(3) of the construction standard states the enforcement rule that regardless of who created a hazard, the employer of exposed employees is required to comply with applicable protective provisions to protect his employees. An example recited in the regulatory text presents the situation of employees working immediately adjacent to a Class I regulated area. If there is a breach of the enclosure or the critical barriers surrounding the asbestos work, employees working immediately adjacent to the work may be exposed to asbestos. The employer responsible for erecting the enclosure is required to insure its integrity. However, in the event that such repair is delayed or not made, the employer of the exposed "bystander employees" must designate a "competent person" to evaluate the exposure potential, conduct initial monitoring or an "exposure assessment," and supervise other required protective actions. The evaluation may include the amount of time and frequency adjacent workers are exposed. For example, although passing through a contaminated area on the way to perform non-asbestos related activities is technically work which exposes employees to asbestos, the competent person's evaluation properly may conclude that no appreciable exposure is possible because of the brevity of the "work" in the area.

(5) Regulated Areas

Paragraph (e) General Industry, Construction and Shipyard Employment Standards. Regulated areas are a traditional component of OSHA health standards. They segregate both the work and the worker so as to better regulate the work, and to protect uninvolved employees from exposure. The 1986 standards required regulated areas for work above the PELs and in construction, for demolition, renovation and removal activities. The final standards require that regulated areas be established where the PELS are likely to be exceeded, and under the construction and shipyard employment standards, where Class I, II and III asbestos work is performed. These requirements are substantively similar to those proposed in 1990.

The basic requirements of the regulated areas are the same for all three standards, They are changed from the current standard to more coherently reflect the rest of the standard's provisions. For example, paragraph (e)(2) which requires the regulated area to be "demarcated to minimize the number of persons within the area, and to protect persons outside the area from exposure to airborne concentrations of asbestos" has been changed in two ways. The phrase "in any manner," has been deleted. Since, paragraph (g) requires critical barriers for Class I and II work, and paragraph (k) requires warning signs outside regulated areas, demarcation must incorporate barriers and signs where otherwise required.

OSHA has also deleted the phrase "in excess of the TWA and/or excursion limit" in the construction and shipyard employment standards to describe the level of protection intended to be offered persons outside the regulated area. Since OSHA has determined that a still significant risk remains below the PELS, intended protection should not be limited to protecting down to these levels. OSHA noted in its 1990 proposal that in the construction standard, "the regulated area controls are proposed to apply even when exposures may be less than the newly proposed PEL of 0.1 f/cc" (55 FR at 29716), however, no change was proposed for the "demarcation" provision. Paragraph (e)(3) is unchanged and continues to limit access to regulated areas to "authorized persons."

The final regulated area requirements for construction and shipyard industry delete former and proposed (e)(6), which dictated when negative pressure enclosures (NPEs) must be erected, and various duties required of the "competent persons" to ensure integrity of the regulated area and enclosure. Under OSHA's former approach, negative pressure enclosures were, in many cases, how construction employers should have demarcated their regulated areas. OSHA focussed on

the role of such enclosures in providing "bystander protection." In these final standards, OSHA is repositioning the NPE provisions to paragraph (g), "methods of compliance." There, these systems are required to reduce exposures of the employees who are disturbing the asbestos who are inside the enclosures, as well as employees outside the enclosure.

(6) Exposure Assessment and Monitoring

Paragraph (d) General Industry. There are no changes to the exposure monitoring provisions of the General Industry Standard.

Paragraph (f) Construction and Shipyard Employment Standard. To conform with the newly revised approach to categorization of asbestos work, and to reflect the difficulties of reliably estimating asbestos exposures based on limited past or current exposure monitoring, the requirements for exposure monitoring in the 1986 standard have been changed. First, there is a general requirement that all employers who have a workplace covered by this standard conduct an "initial exposure assessment" at the beginning of each asbestos job [(paragraph (f)(2)]. Exceptions to this requirement exist only for most Class IV work. The "assessment" must be conducted by the "competent person." The purposes of these "assessments" are to predict whether exposure levels during the planned asbestos work can be expected to exceed the PELs, and thus whether additional monitoring, and other precautions are required.

"Initial assessments" are different from "initial monitoring" required in the 1986 standards. "Initial monitoring" as used for processes in general industry, was rationally relied on to estimate future exposures for that purpose. Historic monitoring data were considered second-best data. The new requirement for "initial exposure assessments" acknowledges that initial exposure monitoring in many cases cannot adequately predict all future exposures on construction jobs. Even if monitoring results were instantaneously available, the value of early exposure monitoring in predicting later exposures over a multi-day asbestos job is limited. First-day exposures are likely to be lower than later exposures, because they reflect early set-up rather than removal activities, conducted in relatively clean areas before disturbance may contaminate the regulated area.

One purpose of the initial exposure assessment is to identify which asbestos jobs are likely to exceed the PEL in time for employers to install and implement the extra controls required to reduce such exposures. Such additional controls may consist of ventilation which redirects the air away from the over-exposed employees, and mandatory protective clothing and hygiene facilities associated with donning and removing such gear. Even employers who are planning to install full negative pressure enclosures with air flushing technology must conduct initial exposure assessments. This will insure that the "competent person" has reviewed the success of controls in past projects, in order to evaluate the planned controls for the current project. Testimony and comment to the record emphasized that the evaluation of industrial hygienists or other properly trained personnel was essential to decision making on how best to protect workers. For example, David Kirby of Oak Ridge National Laboratory, agreed with the statement that before there is any operation involving asbestos containing material, the industrial hygiene staff makes a determination as to whether that's likely to be a high risk, relatively high risk or a low risk operation (Tr. 197). Other participants endorsed requiring advance assessment of asbestos-disturbing jobs (see e.g., ORC, Ex. 145, p. 6).

The former "initial monitoring" provisions allowed use of historic data. OSHA now requires the evaluation of data from earlier asbestos jobs to estimate exposures on new jobs. However, the "data" reviewed are more than air monitoring results. This record has convinced the Agency that consideration of factors in successfully controlling asbestos exposures needs to be a part of the assessment. In addition to measurement results, the assessment must review relevant controls and conditions, factors that influence the degree of exposure. These include, but are not limited to, the degree and quality of supervision and of employee training, techniques used for wetting the ACM in the various circumstances encountered, placing and repositioning the ventilation equipment, and impacts due to weather conditions. The assessment therefore must be based on the competent person's review of all aspects of the employer's performance doing similar jobs. Only if similar controls are used and the work supervised by the same or similarly trained personnel, may past data be relied on. In addition, the results of initial monitoring required if feasible, must inform the competent person's assessment. Judgment of the "competent person" is required when reviewing records of past work. For example, even where an employer's earlier glove bag removals produced some exposures above the PEL, if more recent glove bag removals by the same crew show no exceedances, the "competent person" may be warranted in predicting that the current job performed by the same crew will be well controlled and exposures will not exceed the PELs.

The other basis allowed for an initial exposure assessment is "objective data" to show that it is, in effect, impossible for a job to result in excessive exposures. The 1986 standard, 1926.58, paragraph (f)(2)(ii), allowed such data to demonstrate that the "product or material containing asbestos cannot release * * * (excessive) concentrations * * *." Since the record of this proceeding shows that almost all asbestos products may in time become hazardous, if for example, their matrix becomes disturbed, the activity, as well as the material, is the exposure-limiting factor. OSHA therefore now allows a showing that a specific activity involving a product is incapable of producing exceedances. The "objective data" must demonstrate that under "the work conditions having the greatest potential for releasing asbestos," an activity coupled with a specific material, simply cannot result in excessive concentrations.

OSHA cannot predict all the combinations of activity and product which will meet this test. OSHA believes instead that construction employers should be given the responsibility for making these determinations for their particular work. However, on the record of this proceeding, they would appear to be limited to Class IV activities, or certain Class III activities such as limited removal of intact asbestos containing gaskets using wet methods and containment methods. OSHA notes that under no conditions can a Class I removal qualify for this exemption; based on the record of this rulemaking, every removal activity involving TSI and surfacing ACM is capable of releasing fibers above the PEL.

There are separate provisions regarding a "negative initial exposure assessment" which is a demonstration that the activity involving the asbestos material is unlikely under all foreseeable conditions to result in concentrations above the PELs.

The competent person must exercise judgment in performing these exposure assessments. For example, if initial monitoring is evaluated the first day's measurements which reflect set-up activities may not adequately predict later exposures on a removal job. The competent person should examine both

the first day's exposures and comparable full job exposure data from other comparable jobs, before a conclusion is reached that exposures on that job will not exceed the PELs.

In large measure, the required bases for making a "negative exposure assessment" in the revised construction standard are the same criteria which would, under the 1986 standard, have allowed an employer to claim an exemption from initial monitoring based on "historic data." The standard makes it more difficult to base an initial exposure assessment on historic data than did the previous provision for initial determination. Now, the assessment must consider, the experience and training of the crews. Therefore, the standard now requires that a negative exposure assessment must compare crews with comparable experience and training, an employer cannot compare untrained and inexperienced crews. And no "negative exposure assessment" can be made if the crews which disturb asbestos in the current job are untrained. OSHA believes that a major factor in the effectiveness of all control systems for removing asbestos-containing materials is the experience and training of the contractor and employees. Evidence in the record shows dramatic reductions in exposure levels as untrained employees learned proper glove bag techniques (see e.g., the NIOSH study, Ex. 125).

The lack of a "negative exposure determination" usually indicates that workers are not experienced/trained or that a job is complex. In such situations, additional protections, less dependent on experience of the workers, or the complexity of the job, should be required. Thus, critical barriers are required in all Class I and II work, and for Class III work, plastic barriers are required, where negative exposure assessments are not produced. If the employer cannot assure that levels will be minimized, protection against migration of asbestos dust must be provided. Similarly, if excessive levels are possible, employees in all classes must be protected by respirator use and the standard so requires.

OSHA believes its approach balances the concern that asbestos exposure levels vary from job to job and may be non-predictive of future levels with the Agency's knowledge gained from long-term enforcement of the asbestos standard. that different employers have different "track records." The negative initial exposure assessment provisions require consideration of factors which have been identified as influencing the variability of results. In fact, one commenter stated that "* * * it is invalid to predict that any particular operation is always below the PEL," identified critical contributing variables as "the materials, work practices and experience of the crew" (Ex. 7–52). OSHA is requiring the "negative exposure assessment" to be based on these, among other, factors. OSHA emphasizes that a "negative exposure assessment" does not predict exposure levels beyond a particular job. A new assessment must be produced each time another job is undertaken. Employers may evaluate repetitive operations with highly similar characteristics, as one job, such as cable pulling in the same building, so long as the historic data used also reflect repetitive operations of the same duration and frequency.

In sum, OSHA believes data specific to the building, contractor and employees is helpful in predicting exposures when the same variables apply. The lack of such data should require additional precautions. Additionally, unless there is a "negative exposure assessment," the employer must continue to conduct periodic monitoring. Periodic monitoring, in a change from the 1986 construction standard, now is required within the regulated areas of Class I and Class II asbestos jobs and for Class III asbestos work where the initial assessment projects that the PEL is reasonably likely to be exceeded. In these operations the employer is to perform daily monitoring representative of the exposure of each workers performing these tasks. The provisions allowing discontinuance of monitoring, additional monitoring, observation of monitoring are unchanged.

Although not a remanded issue, several participants discussed the subject of a clearance fiber level to determine when a regulated area could be reoccupied following asbestos operations. Some supported use of a clearance level with aggressive sampling and analysis in accredited laboratories (Ex. 141, 143). Most who supported a clearance level stated support for the AHERA level of 0.01 f/cc or background fiber level (40 CFR 736.90). A representative of the US Navy felt that measurement of the quality of abatement—a clearance level—was needed, but that it should not be considered to be a "health standard" (Ex. 7–52). In a similar vein, the Resilient Floor Covering Institute (Ex. 147, Tr. 279) and a representative of the American Paper Institute pointed out that a permissible exposure limit and a clearance level are not the same and should not be confused; the former is health-based and the latter a measure of cleanliness (Ex. 7–74). Mr. Churchill an asbestos consultant, supported a clearance requirement and felt that the person performing this measurement should be an independent entity (Ex. 7–95). As mentioned earlier, the Shipyard Employment Standards Advisory Committee recommended adoption of a clearance level of 0.04 f/cc measured non-aggressively (Ex. 7–77). The submission of the Monsanto Company expressed their desire that OSHA not adopt a clearance requirement (Ex. 7–125).

OSHA has not included a provision for a specific "clearance level" in these revised standards. In reviewing the record, there is no clear evidence of a linkage between such a requirement and subsequent lessening of worker exposure. Clearly, regulated areas must be cleaned following asbestos work. However, designation of a specific fiber level which must be attained before an area can be reoccupied does not appear to be necessary for worker health when all other provisions of the standard are complied with. Meeting the requirements of the standards will protect workers and bystander employees and will prevent the migration of fibers from the work area. The docket contains some data indicating that attainment of a clearance level (either background or 0.01 f/cc) does not conclusively predict fiber levels which will occur in formerly regulated areas (Ex. 1–23, 162–19). Therefore, OSHA has not included a quantitative cutoff to determine whether a work area has been adequately cleaned to allow re-entry, rather the standards now require that the information regarding the final monitoring of the prior work be provided to those reoccupying the area. However, OSHA recognizes the need for adequate cleaning of the worksite following disturbance/removal of asbestos.

(7) Methods of Compliance

Paragraph (f) General Industry.

OSHA proposed several changes to the methods of compliance provisions. One was to require specific work practice and engineering controls for brake and clutch repair; another was to regulate the maintenance of asbestos-containing flooring by prohibiting certain kinds of work practices and requiring others; the third was to require that engineering and work practice controls to achieve the newly reduced PEL of 0.1 f/cc be phased-in to coincide with the imposition of the EPA ban for various industrial sectors which manufacture asbestos containing material (see 55 FR 29721–29726). The final general industry standard retains the conceptual outline of these

proposed changes; however the details differ.

Brake and Clutch Repair

OSHA is adding a mandatory appendix to its asbestos standard for general industry and to the shipyard employment standard. This appendix specifies the engineering controls and work practices to be followed during brake and clutch work. Two methods of control are "preferred," the enclosure/HEPA vacuum method and the low pressure/recycle method. In operations in which such work is infrequent (i.e., establishments performing fewer than 5 brake jobs per week), simple wet methods are included among the "preferred" controls. Also, use of "equivalent" methods of control is permitted.

In the July 20, 1990 proposed revision of the general industry asbestos standard, OSHA proposed that the employer comply with the standard by implementing one of three specified methods of engineering controls and work practices to control asbestos exposure during automotive brake and clutch repair and assembly operations. These methods were the enclosed cylinder/HEPA vacuum system, the spray can/solvent system, and the wet brush-recycle method. Detailed requirements for these three methods were set out in proposed Appendix F. Once having properly used one of these methods, the employer would have been exempt from other requirements of the standard. OSHA preliminarily found that the use of these methods would routinely result in exposure levels below the PEL. The proposal also would have allowed the employer to comply with the standard by using an "equivalent" method, which follows written procedures, which the employer demonstrates can achieve results equivalent to Method A, [the enclosed cylinder/HEPA vacuum system, Proposed 1910.1001 (f)(x)]. This proposed revision differed from the 1986 standard in two ways. The earlier standard set out two methods of reducing exposure in a non-mandatory appendix. Secondly, the controls themselves are somewhat different; one method, the wet brush-recycle method, was added; the enclosed cylinder/HEPA vacuum system was revised, and the spray can/solvent system is retained. OSHA endorsed these three methods based primarily on the results of a NIOSH study completed after the 1986 standard which found that all three methods effectively reduced exposure levels during brake drum servicing operations to below the proposed PEL of 0.1 f/cc (Ex. 1–112).

In the final standard OSHA lists two "preferred methods," the wet-brush recycle methods and the enclosure/HEPA vacuum system. OSHA is deleting the solvent/spray method from the list of preferred methods. OSHA still is listing the above two methods as "preferred," but the description of these methods is more generic than in the proposal, so as not to preclude use of methods which differ from those described in the proposal in minor ways which are unlikely to affect their efficiency. In addition, specific training provisions are added to ensure that work practices are effectively followed.

Like the proposal, "equivalent" methods are allowed so long as required training is held. The employer must show that the "equivalent" method can reliably achieve exposures below the PEL in the workplace conditions where the method is sought to be used. In addition employers using such "equivalent" methods must demonstrate by exposure data from their workplaces using the equivalent method, or by reference to exposure data representing conditions similar to their workplace that the anticipated exposure reduction in fact, has been achieved. OSHA believes that these changes will allow employers to choose among various proven approaches and encourage the development of new devices and practices which effectively reduce exposures in brake and clutch repair facilities.

Considerable comment and testimony were submitted to the record by the public concerning OSHA's proposed revisions on protection for automotive repair workers. Information concerning additional methods to achieve asbestos control during brake repair was submitted. These additional methods include HEPA vacuum systems without an enclosed cylinder (Ex. 7–104), using water spray instead of solvent spray (Ex. 7–104, 7–04), enclosures shaped other than cylindrically (Ex. 7–127), and collecting the drips of sprays from the solvent spray method (Ex. 1–84).

Some commenters claimed that OSHA should not require any specific method of reducing airborne asbestos exposure to brake and clutch repair workers, but merely require that the PEL be achieved (Ex. 7–31, 7–43, 7–79, 7–104, 7–146). Other commenters pointed out that most brake service operations are performed by small businesses that lack resources to evaluate control devices (Ex. 1–112). Evidence submitted concerning the airborne asbestos fiber levels produced by the use of most of the suggested methods showed exposures consistently below the proposed PEL of 0.1 f/cc.

Various comments concerned the "wet brush-recycle method." A developer of an enclosure method for brake/clutch repair asbestos control, recommended that the term be broadened to allow "more latitude in design preference for the manufacturer" (Ex. 162–41). He suggested that the name be changed to "low pressure/wet cleaning" method. He also asked that OSHA use a more general term to describe the preferred enclosure method, objecting to specification of its shape as cylindrical. OSHA agrees that the shape of the enclosure need not be specified and that the term suggested, "negative pressure enclosure/HEPA vacuum system," was appropriate.

Similarly, R. Wagner of BP of America felt that it was not necessary that the wet brush/recycle method actually include a brush and presented monitoring results indicating effective fiber control when spraying on the solution without brushing (Ex. 7–24). OSHA agrees that, although a brush is useful in cleaning the components, the preferred method will be designated low pressure/wet cleaning and will not specify the use of a brush.

A manufacturer of a low pressure/wet cleaning apparatus, objected to OSHA requiring use of an aqueous solution in the machine (Ex. 162–1). OSHA understands that the organic solution in the apparatus is a degreaser used as a parts cleaner. Mr. Swartz in testimony explained that solvents are used as degreasers, but that most brake work does not require degreasing—he estimated that only once per 200 to 300 brake jobs would such a solvent be needed (Tr. 1843). OSHA has determined that it will maintain the requirement that aqueous solutions be used in this procedure to control asbestos fiber levels. OSHA further warns of the potential danger of solvent use in these operations and that use of solvents, which are often flammable and may be carcinogenic, must be undertaken with great care. OSHA also stresses the need for low pressure application of the solution to the surfaces during this operation to avoid asbestos fiber release and the necessity that the asbestos-contaminated solution not be allowed to dry on surfaces.

A manufacturer of a wet brush-recycle type brake cleaner, Hilgren of Kleer Flo, offered the following advice to users of this method regarding disposal of waste: "Our recommended method of disposal is to simply add adsorbent material such as "floor-dry" to the waste bag. Then direct the flow through brush into the bag containing the absorbent material. Allow the machine to pump the solution from the reservoir" (Ex. 7–117).

Most relevant comments supported the effectiveness of two of the three proposed "preferred" methods: the enclosure/HEPA vacuum method and the wet wash/recycle system. However, substantial opposition was directed at OSHA's preference for the solvent spray system. For example, George Swartz, Director of Safety for Midas International Corporation testified that "the utilization of an aerosol system is ludicrous" (Tr. 1840). One, some of the solvents used in commercial preparations are suspect carcinogens. Two, use of a spray can does not reliably control exposures due to asbestos dust in the brake assembly, because of the difficulties of removing the drum, and that after removal asbestos containing dust in the assembly cannot easily be reached by a aerosolized spray. Three, certain solvent sprays, according to Mr. Swartz, can damage friction material and the rubber parts of the cups which force the brake shoe out to the drum (Tr.1840–46). Another witness, James E. Clayton, testified that "you can't take a can of compressed solution like this (Gunk brake cleaner) and just spray it on dry dust without it getting into the air." (id at 1914–15).

The National Automobile Dealers Association (NADA) agreed in its post-hearing comment that the use of spray can with certain solvents is potentially dangerous, and suggested that nonhazardous sprays or aerosols be allowed (Ex. 150). Another participant described an occasion in which the spray can was accidentally dropped, punctured, and released solvent into the work area (Ex. 7–24). The safety director at Fruehauf Trailer Operations, asked "why is it necessary to use a solvent as opposed to water? * * * why couldn't it be used in place of a solvent in the performance of brake and clutch work?" (Ex. 7–4). Mr. Swartz agreed that "simple water and detergent can be as effective" (Ex. 1–176) However, he insisted that it be a gentle mist of water and that resulting drips be caught and proper disposal carried out (Tr. 1852).

OSHA agrees with these comments and witnesses. The Agency notes that some of the solvents contained in the spray cans used to spray brake assemblies present significant health risks. As a matter of public health policy, it is better not to list as preferred, a compliance method which introduces another hazardous substance into the breathing zone of the worker.

Further, the effectiveness of the solvent/spray method is compromised by the reported need to use additional force to remove asbestos deposited in the brake assembly, which the spray cannot reach. Additionally, comment and testimony indicate that the force of the aerosol spray by itself can make airborne the asbestos-containing dust. OSHA noted in the proposal, that the spray/solvent can method produced the highest airborne concentrations of the methods tested by NIOSH (55 FR at 29724). OSHA notes that although it based its endorsement of the solvent/spray method on the NIOSH study, as Mr. Swartz pointed out, "the issue of the residual dust left in a drum, I don't think, was properly addressed in that study * * * (In) the real world, * * * the mechanic will either dump it on the ground or he'll dump it in a garbage can. At the end of the day he's going to sweep the floor, and he's sweeping the dust up" (Id at 1845).

Thus, in this final standard the spray/solvent can method is no longer a "preferred method," the use of which will exempt employers from other provisions of the standard. Although the standard does not prohibit the use of solvent sprays in brake and clutch repair to control asbestos exposure, employers will have to comply with other provisions in the asbestos and other standards when using the method. Initial monitoring must be undertaken to assure that exposures are likely to remain under the PEL, provisions of the hazard communication standard relating to communicating the hazard potential of the solvent used, and training employees in avoiding exposure to such solvent must be complied with. Employees must be specifically informed that the solvent/spray method is not preferred, and OSHA's reasons for that decision must be explained to them, as part of that training. Employers must provide for the prompt cleanup of all asbestos containing liquid or debris which is produced by any brake cleaning method, including a solvent/spray. Thus, solvent-wetted asbestos containing material must be HEPA vacuumed when it reaches the ground, because waiting will result in dried and airborne dust.

Among the methods tested by NIOSH was the use of a HEPA vacuum alone, without enclosure. The National Automobile Dealers Association representative, D. Greenhaus, encouraged OSHA to include this in its list of preferred methods of asbestos control in brake work stating that this was the method already in use in many places (Ex. 7–104). The Sheehy (NIOSH) study noted that" * * * the drums must be removed before the vacuum cleaner can be used, thus there is a potential for asbestos release during drum removal" (Ex. 1–112), and P. Carpenter of Nilfisk stated "[t]he greatest potential for exposure occurs when the brake drum is first removed" (Ex. 7–140). OSHA agrees that the potential for exposure during drum removal before the HEPA vacuum can be used precludes listing including this as a preferred method. Moreover, NIOSH found that HEPA systems alone do not clean the brake components as effectively as the other methods (Ex. 1–112). Mr. Greenhaus also recommended that OSHA prohibit three activities during brake operations: dry brushing, air hose cleaning and use of non-HEPA vacuums. NIOSH agreed that such prohibitions are necessary and OSHA concurs.

One related issue is whether to require respirator use for employees when changing filters or bags from vacuums. OSHA proposed that they not be required when changing HEPA filters, noting that filter changes occurred infrequently, recorded fiber levels during changes were not excessive, and other requirements triggered by respirator use, such as medical examinations and fit testing procedures, did not appear to confer any significant benefit to employees. One participant, Mr. Clayton, who initially disagreed with OSHA's proposal not to require respirators for filter changes, clarified that the ancillary requirements for a respirator program, "would scare everybody away from wanting to do it * * * and would be a rather heavy burden for most employers" (Tr. 1931). Mr. Clayton pointed out that exposure potential existed not only during filter changes, but during vacuum bag changes as well. He further pointed out that although HEPA filter changes were infrequent, bags "could be changed as often as every three to five weeks by a shop" (Id at 1929). Mr. Clayton described two systems of ensuring that bag changing does not expose employees to asbestos containing dust. Under one system the bag is collected under negative pressure; under the other the bag is made from non-woven material and is "virtually undestructible." OSHA has concluded that so long as filters and vacuum bags are changed using work practices to minimize rupture and spillage, exposure from that activity will be de minimis, and respirator use is not required to protect employees. Accordingly, additional work practices relating to filter changes, when a vacuum is used, are included in the standard.

OSHA is allowing another method to be used in shops in which brake work comprises only a minor portion of the workload, and thus where employee exposure is infrequent and minimal. For those shops in which brake work is infrequent, OSHA has determined to

allow the use of a wet method of control as a "preferred" method. Therefore, in facilities in which no more than 5 pairs of brakes or 5 clutches, or some combination totaling 5, are repaired each week, the mechanic/technician may control potential asbestos exposure through the use of a pump sprayer (bottle) containing water or amended water to wet down the drum or clutch housing before it is removed and to control fiber release during subsequent activities. The mechanic may use other implements to deliver the water such as a garden hose; however, the resulting waste water generated must be caught and properly disposed of without allowing it to dry on any surfaces. OSHA anticipates that the use of a spray bottle will be adequate to control the dust without generating a large volume of waste water, however any waste water generated must be disposed of properly. OSHA applied a qualitative analysis using its risk management expertise in making the decision that allows less effective controls for facilities that do 5 or fewer brake and 5 or fewer clutch repair jobs per week. Relevant factors were the magnitude of the risk of asbestos caused disease estimated in the 1986 risk assessment at levels of exposure in vehicle repair facilities, the duration of exposure, and the practicality of using controls in the industry.

In describing the usual work practices of mechanics performing brake jobs, Mr. Swartz of Midas Corporation reported that it was occasionally necessary for the mechanic/technician to dislodge a "frozen" brake drum; this was usually performed by striking it with a hammer (Ex. 1–176). When performed within an enclosure under negative pressure, this operation would be unlikely to expose the worker to asbestos fibers; however, when using the other methods it is essential that the exterior of the drum, especially around the seams, be thoroughly wetted to minimize fiber release. OSHA concurs and thus will require that before attempts are made to dislodge a "frozen" brake drum, the drum must be thoroughly wetted.

Other comments were received which dealt with minor alterations in wording which would render the requirements clearer and more specific and some of these have been incorporated into the language of Appendix F (Appendix L in the shipyard employment standard). Several participants noted that additional activities, such as inspection and disassembly of brakes could also result in exposure and should be included. Mr. Swartz explained that brakes are frequently checked to determine whether they are defective and this involves removal of the drums and results in potential exposure to asbestos-containing dust (Tr. 1843). OSHA agrees that these activities should be covered by the rule and has included them in the language of the final rule. Therefore the following activities will be listed and will require implementation of the provisions of the mandatory appendix F (appendix L in the shipyard employment standard): clutch and brake inspection, disassembly, repair and assembly.

Mr. Swartz also testified that brake shoes are recycled and new friction material is placed on re-used metal frames (Tr. 1871). A letter forwarded to OSHA by EPA Brian Putnam, whose work experience included 4 years of delivering auto parts to garages and service stations, stated:

> * * * it is my observation that auto parts employees face significant exposure to asbestos from brake shoe cores, brake drums, and clutches. Not only do they store cores for exchange with the manufacturers, most also turn brake drums which come in with a * * * coating of dust on them (Ex. 1–133).

The asbestos standard 1910.1001 (k)(1) states that "all surfaces shall be maintained as free as practicable of accumulations of dusts and waste containing asbestos," and subsequently in (k)(6) specifically states that items consigned for disposal which are contaminated shall be sealed in impermeable bags or other closed impermeable containers. In order to include materials which are contaminated and scheduled for recycling, not disposal, the phrase "or recycling" is added to this provision (k)(6), which now is as follows: Waste, scrap, debris, bags, containers, equipment and clothing contaminating with asbestos consigned for disposal or recycling, shall be collected and disposed of in sealed impermeable bags, or other closed, impermeable containers.

Engineering controls and good work practices should be implemented at all times during brake servicing. Because of the health hazards associated with asbestos exposure, these actions must be considered even when the worker believes that the brake shoes do not contain asbestos.

OSHA received several comments pointing out a need for training requirements for brake and clutch mechanics. For example J. Clayton of Clayton Associates, Inc supported a training requirement for brake and clutch repair workers citing as examples that New Jersey required one day training for mechanics and that Maryland requires training for those covered under its asbestos program. He estimated the cost of training at $150 and noted that certified instructors were required in both these states (Ex. 7–127). OSHA agrees that workers exposed to asbestos must be trained in appropriate ways to avoid exposure to airborne asbestos fibers. Therefore, OSHA has provided a mandatory appendix outlining the work practices to be used in performing these operations, and has included a requirement that brake and clutch repair workers receive training in the appropriate use of these work practices.

Floor Maintenance

Paragraph (k)(7) General Industry Standard. The 1986 standard contained no provisions specifically covering work practices on asbestos containing flooring materials. In 1990, OSHA proposed in paragraph (f)(xi) several limitations on buffing and sanding asbestos containing flooring. In the housekeeping section of the final OSHA is prohibiting or limiting three work practices relating to floor maintenance for asbestos-containing flooring materials and those assumed to contain asbestos. They are: (i) sanding of asbestos-containing floor material is prohibited; (ii) stripping of finishes shall be conducted using low abrasion pads at speed lower than 300 rpm and wet methods; and, (iii) burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the asbestos-containing material.

OSHA had proposed to allow asbestos containing floor tile to be buffed only with "low abrasion pads at speeds of 190 rpm or less" (See 55 FR at 22752). However, after a review of the record OSHA believes that restricting sanding of floor materials, limiting the speed and abrasiveness of the pads and specifying use of wet methods for stripping floors, and allowing buffing only on finished floors will protect floor care workers from exposure to airborne asbestos fibers while performing the maintenance and will minimize future exposures due to deteriorating flooring caused by inadequate maintenance.

Paragraph (g) Construction and Shipyard Employment Standards:

The "methods of compliance" provisions are the core of the revised standards. They set generic, operation-specific and exposure triggered requirements for conducting asbestos work. In the 1986 construction standard, provisions dictating engineering controls and work practices for most construction jobs were contained in paragraph (e), governing the "regulated area." OSHA believes that paragraph (g).

the methods of compliance section, is a more logical home for these provisions.

Most of the requirements in paragraph (g) are instructions to use specified work practices. The work practice approach to controlling asbestos exposure in construction activities is widely endorsed. It is the model for NESHAP regulation under EPA (see 40 CFR 60.143), most state regulations and voluntary consensus guidelines. OSHA has tried to formulate work practice requirements as simple, flexible instructions, embodying the basic control strategies for asbestos dust suppression. These are to wet it down, contain the disturbance, and isolate the operation. The work practice-engineering controls which are listed and described in the regulation are the ones which the rulemaking record confirms are used, understood, and effective.

OSHA expects that modifications and innovations in asbestos control technology will be developed. The standards provide for this by setting up general criteria for alternative controls, and an easily met procedure to allow the use of effective alternatives. Paragraph (g)(6) governs alternatives for Class I control methods, and paragraph (g)(7)(vi) for Class II methods. For both classes, detailed written demonstrations of the effectiveness of the alternative/modification are required and evaluations by designated persons are required. Alternatives for Class I work require a more rigorous demonstration of effectiveness, and advance notice to OSHA of their use. OSHA intends these requirements to be capable of being met by well-designed and tested alternative control methods. They are meant to exclude short-cut methods which hope to evade the other provisions in the standard. By their inclusion, OSHA is stating its policy view that industry has demonstrated its responsible innovative capability in the past, and will continue to do so.

The first provision in the construction methods of compliance paragraph, (g)(1)(i), requires that three basic and simple controls be utilized in all operations covered by the construction standard, regardless of exposure levels in those operations. These provisions apply to, for example, employers who install asbestos-containing material (no Class designation), clean up asbestos-containing debris at a construction site (Class IV), repair a boiler covered with asbestos-containing TSI (Class I or III), and remove asbestos-containing surfacing material (Class I).

The controls required are: use of HEPA filtered vacuums to collect debris and visible dust; use of wet methods to control asbestos fiber dispersion; and prompt disposal of asbestos contaminated waste materials.

OSHA has imposed these controls to reduce airborne contamination by asbestos fibers disturbed during construction activities. However fibers are released, contamination can be reduced by suppressing asbestos containing dusts, and/or collecting them before they dry and are able to migrate.

OSHA believes that most employers will be able to use wet methods, in handling asbestos-containing materials to reduce the airborne migration of fibers. The use of wet methods to control airborne asbestos was not explicitly required in the 1986 construction standard. It was mentioned among the control measures which could be used to keep down fiber levels during "maintenance and renovation projects in environments that do not lend themselves to the construction of negative-pressure enclosures" (51 FR 22711). In the Method of Compliance section, OSHA presented use of wet methods among a list of engineering and work practice controls from which an employer could choose when seeking to comply with the PEL. The 1972 asbestos standard had required the use of wet methods to the extent practicable to reduce the release of asbestos fibers unless the usefulness of the product would be diminished by the use of such methods. On reconsideration, OSHA now finds the use of wet methods to be an inexpensive, generally feasible, and highly effective way to control release of asbestos fibers and returns to the earlier requirement for its use in all feasible situations.

There is overwhelming record support for the use of wet methods (e.g., Exs. 7–1, 7–34, 7–37, 7–51, 7–52, 7–74, 7–86, 7–89, 7–99, 7–132, 119P, 143, Tr. 223, 722 and 756). Representatives of most sectors, expressed support for a requirement for wet methods.(e.g., transite panel removal, Ex.7–74; removal of asbestos packing, Ex. 7–99; floor tile maintenance, Ex 7–132; custodial or maintenance work, Ex. 162–4, 162–25; floor tile and sheet removal, Ex 7–132; sheet gasket removal, Ex 119; cutting of transite pipe, Ex.117, Tab 6 at 5, Tab 7 at 1). B. Kynock of the AIR Coalition endorsed the use of wet methods, stating: "wetting of material is still considered a state of the art engineering control—using wet methods—because it is the one definitive way we can keep fiber levels to a minimum" (Tr. 3574). Evidence submitted into the record concerning a variety of asbestos jobs showed significant decreases in exposure levels when wet methods were used, compared to when the work was done dry [see e.g., re: sheet gasket removal (Ex.119–P)]. In the study by Paik *et al*, 1982 (Ex. 84–204) sprayed-on asbestos containing material was removed from eleven buildings, in one dry methods were employed due to electrical considerations while wet methods were employed in the other buildings. The dry method resulted in a geometric mean fiber level of 16.4 f/cc, while during the use of wet methods the geometric mean was 0.5 f/cc. OSHA notes that the OSHA PEL at the time the samples were taken was 2.0 f/cc.

Exxon (EUSA) submitted extensive sampling data indicating low fiber counts during outdoor removals in which wet methods were used (Ex. 38). Exxon also submitted sampling data from the outdoor removal of pipeline wrap from underground lines in which wetting was the primary means of control and in which 30 personal samples had an average fiber level less than 0.03 f/cc (Ex. 127). It is noted that Exxon also submitted specific additional work practices used in conjunction with wet methods to control fiber levels.

Requiring wet methods is consistent with EPA's regulatory scheme. Wet methods are required by EPA for removal and demolition jobs falling within the jurisdictional limits of NESHAP, and are recommended by that Agency as part of a basic "O & M" program for building custodians and maintenance workers. (EPA, Managing Asbestos In Place, Ex. 1–183, p. 18–19).

EPA/NESHAP, which requires facility owners and/or operators to control asbestos fiber emissions by wetting prior, to during, and after demolition/removal, has provided guidance in a pamphlet entitled "Asbestos/NESHAP Adequately Wet Guidance" (EPA 340/1–90–019, December 1990, Ex. 1–300). In this booklet two exceptions to wetting are described: when temperature at the point of wetting if below freezing, and, when use of water would unavoidably damage equipment or present a safety hazard. In the latter case, local exhaust ventilation and collection systems to capture fibers must be used.

Others voiced reservation regarding a universal requirement for use of wet methods. E. Downey of US West, Inc. felt that in the case of telecommunications industry and computer systems, use of wet methods would not be practical, particularly in roofing operations (Ex. 7–79). J. Collins of the US Navy Office of Operations and others recommended ground fault circuit use for avoiding the electrical hazards presented by use of wet methods (Ex. 7–52).

OSHA will allow employers to claim infeasibility if they cannot use wet methods due to conditions such as electrical hazards, hot surfaces, and the presence of technical equipment which cannot tolerate moisture.

The use of wet methods for roofing was a major issue in this proceeding. Steven Phillips, counsel to the National Roofing Contractors Association testified:

> We have submitted for the record a report performed by SRI * * * their recommendation was that there is no improvement on asbestos emissions and there are safety hazards involved in putting workers on roofs when wet methods are utilized * * * (Tr. 2456).

The National Roofing Contractor's Association (NRCA) cited four reasons not to require wetting on roofs: "the introduction of water on the roof creates safety hazards, such as slipping; water on the roof can enter the building and cause damage and electrical hazards; the introduction of water on the roof can damage the roof system (e.g., by soaking insulation boards); the SRI International study reveals that roofing work involving wetting does not appear to produce either higher or lower concentrations than work performed dry. We believe this is because of the nature of roof systems. They are applied and in place to repel water. Thus, water (amended or unamended) does not penetrate the material—it just rolls off of it" (Ex. 7–112, p. 21).

Some participants suggested that using wet methods on roofs should be recommended, but not required, because of safety concerns. For instance, the asbestos administrator for Florida, noted that using wet methods on a sloped roof may be more of a hazard to the workers, than the benefits gained (Ex. 7–6).

In contrast, NIOSH recommended that before an operation (tear-off of asbestos-containing roofing material), the roof should be wetted with water or other wetting agent (Ex. 44). BCTD noted in its post-hearing brief that "the majority of the jobs reported in the SRI Study, submitted by NRCA, employed wet methods" (Ex. 143, citing Ex. 9–31A). Various submissions noted that power cutting of built-up roofing is the standard method used to remove roofing material. Use of this method generates dust which may contain asbestos (Ex. 1–357, 7–95, 7–96, 7–115). The Paik study and other evidence demonstrate that wetting does substantially reduce exposure. OSHA believes that continuous misting of the cutting blade during the cutting operation, whether performed by hand or by machine will help to control dust. Field observations of such procedures have shown that little water is pooled as a result of the misting process (Ex. 1–313), and that in most circumstances, evaporation will quickly occur. Therefore, OSHA does not believe that the requirement to mist the cutting blade will create a slipping hazard on roofs under most circumstances. If, however, a competent person determines that the specific conditions of a roofing job (e.g. a steeply sloping roof, or below freezing temperatures) combined with the water resulting from any misting, would create a slipping hazard, misting may be omitted, if other precautions are followed, such as equipping the power tool with a HEPA vacuum system, or using hand methods.

The National Roofing Contractors Association said that currently there is no HEPA vacuum attached roofing cutter (Ex. 146). However, a wide variety of power tools have been fitted with local exhaust systems that work very well, including those used on tools for asbestos work. The 1972 asbestos standard required the use of local exhaust ventilation on all hand-operated or powered tools which may produce or release asbestos fibers in excess of the permissible exposure limit (37 FR 11320). The 1986 standard affirmed the requirement for ventilation for tools (51 FR 22715). We again reaffirm it here. To the extent feasible, tools used for working with ACM must be equipped with local exhaust ventilation. Some development work may be needed, but HEPA vacuum systems have been designed for many similar uses.

Other Basic Controls

The other basic controls in (g)(1), required for all operations under the standard are intended to reduce exposure caused by resuspension of asbestos fibers which have settled. The first is the requirement in (g)(1)(i) to use vacuum cleaners equipped with HEPA filters or other methods to collect debris and visible dust containing ACM or PACM before the material dries, which prevents the resuspension of fibers. This requirement complements the prohibition in (g)(2)(iii), which prohibits dry clean-up, including sweeping and shoveling, of dust and debris containing ACM or PACM. Although "wet" sweeping is not prohibited, it is not preferred, and may not be used to "collect" visible dust and debris. Nor may dry ACM or PACM-containing dust or debris be collected by means other than vacuuming with a HEPA filtered vacuum.

There was substantial record support for these requirements. As noted above these procedures apply to all asbestos operations. In removal operations, the requirement to use wet methods in the removal [(g)(1)(ii)] will help assure that resulting debris and dust can be collected before they dry out or are vacuumed up using vacuums equipped with HEPA filters (g)(1)(i). Even if operations are conducted within negative pressure enclosures, debris and dust should not remain uncollected for the entire work shift, because the resuspension of asbestos fibers from these sources creates additional new exposures for employees. If the work is performed within glove bags, leaks in the bags may create dust and debris. Fallen debris can be spread to parts of the building and thereby create widespread contamination. If the collection bags or devices required by other provisions fail or fall short, prompt collection of the dust and debris will limit the exposure to workers from such failure. If the negative pressure within the enclosure lapses, prompt collection of dust and debris will protect employees outside the enclosure from resuspended fibers. For these reasons, OSHA believes that careful treatment of asbestos waste and visible dust must be followed in all construction and shipyard industry operations which expose employees to asbestos.

OSHA notes that for demolition and renovation work which is covered under NESHAP (40 CFR 61 Subpart M), all ACM must be kept wet until sealed in a leak-tight container which includes an appropriate label. OSHA is extending this requirement to all jobs under the standard, and now requires that all asbestos-contaminated waste be promptly disposed of in leak tight containers [(g)(1)(iii)].

Requirements for Operations Which May Exceed the PELs

Paragraph (g)(2) applies to situations where it is expected that exposures may exceed the PEL, and thus additional controls are required to keep exposures at or below the PEL. Paragraph (g)(2) requires that local exhaust ventilation equipped with HEPA filter dust collection systems be installed for fixed processes involving asbestos handling and for power tools used in installing, or otherwise handling asbestos containing materials. In addition, enclosure or isolation of the asbestos releasing process must take place. These controls were listed as optional in the 1986 standard. They are now required, because of their proven ability to reduce dust levels in virtually all occupational environments. These controls, in particular, apply to construction activities involving the installation of

new asbestos-containing construction materials, and in some cases the removal of previously installed material.

R.J. Pigg, President of the Asbestos Information Assn. of North America, testified that "the tools that we use, (for cutting asbestos-cement pipe as recommended work practices) are those that can be fitted with vacuum attachments. We have studies that relate to those recommended work practices that * * * support, when they're being followed, that you're well below the PEL" (Tr. 558–9).

In addition, paragraph (g)(2) requires that where the exposures are expected to be above the PEL, ventilation to move contaminated air away from exposed employees in the regulated areas toward a HEPA filtration or collection device is required. This requirement is adapted from the current standard which lists "general ventilation systems" as one of the control methods to be used to achieve the PEL. However, OSHA believes that the term "air sweeping away from exposed employees toward a HEPA filtered exhaust device" is more appropriate and effective. Further, it removes the interpretative possibility that using a general building ventilation system to vent asbestos-contaminated air, would be acceptable under the standard. A similar requirement is also aimed at Class I jobs which cannot produce a negative initial exposure assessment [see (g)(4)(F)].

Prohibitions

Paragraph (g)(3) sets out four prohibitions for all work under the standard. One prohibition, relating to high-speed abrasive disc saws, is made more specific; one, prohibiting dry sweeping and dry clean-up of ACM and PACM is added; and, one prohibiting employee rotation is expanded to apply to all attempts to reduce exposure, not, as in the 1986 standard, to reach the PEL. OSHA finds these changes will help reduce employee exposures and are consistent with the revisions to the standards.

Controls for Asbestos Jobs According to Their Classification

The next set of requirements in the "Methods of Compliance" beginning at paragraph-(g)(4), are keyed to the four classes of construction activities, Class I through IV, relating to previously installed ACM and PACM, defined in paragraph (b). The scheme is risk-based with Class I as the most hazardous, and Class IV the least so.

Class I asbestos work consists of the "removal" of asbestos-containing TSI and surfacing material and of PACM, including demolition operations involving these materials. Class II work consists of the "removal" of all other asbestos-containing materials, including resilient flooring presumed to contain asbestos. Class III work consists of the "disturbance" of all previously installed asbestos-containing building materials and PACM. Class IV work consists of housekeeping and custodial work in contact with previously installed ACM and PACM, and the clean-up of debris on construction sites.

All asbestos work under the construction and shipbuilding standards is not in the "class system." The installation of new asbestos-containing products does not carry a class designation, and thus the class-specific requirements do not apply to that activity. Work covered by the general industry standard is not included in the "class system" as well.

OSHA also notes that the differences in controls required among classes is not great. Further, the Agency believes that the risk overlap between adjoining classes is neither frequent nor large, and that the standard allows the employer flexibility in most such cases. The regulation requires job-by-job evaluation of regulated projects, and gives the competent person some leeway in easing some requirements when it appears that the project can be done especially safely.

The following examples illustrate how operations involving potential asbestos disturbance are to be classified. If an insulated pipe is leaking, and less than one standard glove bag's worth of TSI is "disturbed" (see definition in paragraph B) in order to repair the leak, it is a Category III job. If the TSI is stripped from a section of piping to inspect all the piping in an area for leaks, it is a Class I job. If the section of piping required to be stripped is less than 25 feet, it is still a Class I job, but critical barriers may not be required if the initial exposure assessment is "negative" [see (g)(4)(i)(B)]. If it is not clear which category the work belongs, the employer should assume the higher, more restrictive, category applies, and should comply with the listed work practices and controls for that category. OSHA believes that most asbestos work will fit easily into the categories which are defined.

OSHA found that the term "small-scale, short-duration," insufficient to distinguish lower risk asbestos operations which allow exemptions from generally required controls.

A historical perspective is useful to clarify this issue. In 1986, OSHA required that all removal, renovation, and demolition operations, except for "small-scale, short duration" operations, be conducted within negative pressure enclosures [29 CFR 1926.58(e)(6)(1986)]. The scope of both the requirement and the exemption was unclear. The requirement did not explicitly apply to "maintenance or repair" operations, though most of the examples given were in that category. The examples cited in the exemption included pipe repair, valve replacement, installing electrical conduits, installing or removing drywall, roofing, and other general building maintenance operations. In addition, OSHA maintained that it was not possible to specify with precision the exact size of a "small-scale" maintenance job or to pinpoint the time involved in a "short-duration" task.

The Court of Appeals stated that OSHA had not drawn the parameters of the exemption with enough specificity and that "the exception as now worded seems to erase the rule." As noted above the Court remanded the issue to OSHA to "clarify the exemption for "small scale, short duration operations" from the negative-pressure enclosure requirements. Further the Court suggested that OSHA limit the exemption to "work operations where it is impractical to construct an enclosure because of the configuration of the work environment," stated by OSHA in the preamble to the 1986 rule, as the intended scope of the exemption (51 FR at 22,711,2).

However, the consequences of qualifying for the exemption were less clear when the regulatory text was consulted. Section (e)(6) of the 1986 standard allowed "small-scale, short-duration operations" to be exempt from the negative pressure enclosure requirement for removal, demolition, and renovations operations. However, some contractors successfully argued in enforcement actions, that a NPE was a particularized kind of a "regulated area" which the overriding general provision required only in "work areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the TWA and/or excursion limit" (Section (e)(1)). To impart certainty to the requirement OSHA issued a compliance directive which triggered the requirement at the PEL, and attempted to clarify the kind of operations which would qualify for the exemption, in a job where exceedances of the PEL were expected.

In its July 20, 1990 proposal, OSHA would have required NPEs based on the type of work to be done; and sought to clarify the definition of small-scale, short duration operations by proposing specific cutoffs for "small" and "short." In addition, general criteria were

proposed which were intended to amplify the exemptive criteria: operations must be "non-repetitive, affect small surfaces or volumes of material containing asbestos * * * not expected to expose bystanders to significant amounts of asbestos * * * completed within one work day." Cutoffs for specific operations were: repair or removal of asbestos on pipes: 21 linear feet; repair or removal of asbestos panel; 9 square feet: pipe valves containing asbestos gaskets or electrical work that disturbs asbestos: one worker, four hours, removal of drywall: one workday, endcapping of pipes and tile removal: four hours, and installation of conduits: eight-hour work shift.

Many participants agreed that using only the duration, and size of a job did not adequately characterize risk. Some argued that all asbestos jobs were risky, indeed there should be little regulatory distinction made. For example, NIOSH spokesperson, Richard Lemen, expressed the view that "even with short duration, small-term jobs we still feel that there is a risk to the worker, not only from the one time exposures, but from the potential of that worker doing multiple jobs over periods of time * * * which increase the exposure each time and the lung burden of asbestos to each of those exposures * * * we still feel that * * * [these jobs] should be treated as protectively as the other type of jobs." (Tr. 244), [See to the same effect the testimony of Mr. Cook, an abatement contractor who testified for the BCTD and Lynn McDonald, representing the Sheet-Metal Workers Union, (Tr. 829ff)].

The proposed definition of small-scale, short duration operations included specification of the number of square and linear feet of asbestos-containing material. There were numerous objections raised to the proposed values.

Several participants suggested that the NESHAP cutoff of 260 square or 160 linear feet, used by EPA for notification, be used as the cutoff for small-scale work (Ex. 7–9, 7–21, 7–39, 7–52, 7–113, 103, 1–53, 1–55). Others such as Edward Palagyi, a Florida State Asbestos Coordinator, felt that this cutoff was too high for OSHA to use in its definition (Ex. 7–6).

Several alternate amounts of material were suggested. Christopher Corrado of the Long Island Lighting Company (Ex. 7–29), James Foley of the New York Power Authority (Ex. 7–31) and Robert Brothers of Eastman Kodak (Ex. 7–81) recommended that OSHA adopt the amounts used by New York in its small-scale definition—25 linear and 10 square feet. William Dundulis of the Rhode Island Department of Health felt that to avoid confusion, OSHA should adopt the same cutoff that EPA used in its Worker Protection Rule—3 linear and 3 square feet (7–124). Others suggested that the amount of material be defined by the amount of asbestos-containing waste generated by the activity. For example, Preston Quirk of Gobbell Hays suggested cutoff maximum of 55 gallon drum or 1 cubic yard of ACM waste material (Ex. 7–34), while OSHA witness David Kirby suggested 3 glove bags worth of waste material or 10 linear feet as the cutoff of a small-scale job (Ex. 7–111). BCTD suggested "the lesser of (a) a yield of no more than 1–1/3 cubic feet (10 gallons) of asbestos-containing waste material, or (b) a maximum length of 2 feet or a maximum area of no more than 8 square feet of material containing asbestos." Noting that the amount of material covering a pipe varies with its diameter, (and the thickness of the material) BCTD calculated that removal of 1 inch of insulation from common pipe dimensions can vary from 1.37 to 5.04 cubic feet of waste. (Ex 143 at 131).

Although OSHA believes that the amount of waste material generated by a job may be a valid index of its exposure potential, the Agency agrees with participants who pointed out the difficulties of estimating the amount of waste material in advance of the job. [e.g., testimony of Chip D'Angelo, an asbestos consultant, (Tr. 3086), Paul Fiduccia, representing a number of real estate and building owner interests, (Tr. 791); Paul Heffernan of Kaselaan and D'Angelo Associates, (Ex. 7–36)].

Various other quantitative limits were suggested which were tied to specific materials; (e.g. transite panels, 32 square feet (Ex. 7–94), 48 square feet (7–96). Mr. Churchill, representing the California Association of Asbestos Professionals, suggested 9 square and 9 linear feet as cutoffs for small-scale jobs (Ex. 7–95 and Tr. 3468).

Charles Kelly of Edison Electric Institute asked whether complete removal of a pipe which might exceed 21 feet in length, but which involved removal of less than 2 feet of insulation at either end to enable cutting the pipe length for removal would be considered a small-scale job (Ex. 156).

Many additional commentators and hearing participants discussed these issues during this rulemaking proceeding. Some commented that the duration cutoffs were not realistic or protective. Other participants asked for clarification on whether duration of the job included preparation and cleanup. Also, Captain John Collins of the US Navy felt that employers would abuse the exemption by assigning many employees to a job in order to complete it in a short time period (Ex. 7–52), and suggested that instead of specifying the number of persons and the number of hours, OSHA should set the limit in terms of man-hours [see also Churchill at Tr. 3468, ORC at Tr. 3181, Kynock of AIR Coalition (Tr. 3539)].

Daniel Bart of GTE Service Corporation expressed concern that by having a time limitation for small-scale, short duration operations in the definition, the installation of telephone cables in buildings might no longer be considered short duration (Ex. 7–87). Dr. Michael Crane of Consolidated Edison, New York objected to the requirement that an operation be non-repetitive in order to qualify as small-scale, short duration (Ex. 7–76). He said, "(t)here are jobs * * * not part of an overall asbestos removal but are performed many times in the course of day during routine maintenance that must be done in generation stations and other utility facilities" [see also the suggestion of Paul Heffernan of Kaselaan & D'Angelo to adopt the concept of "functional space" as designated under AHERA, and defining a non-repetitive operation as occurring once within such a functional space (Ex. 7–36)]. Some also asked if OSHA intended preparation time and clean-up time be included in the duration limits for SSSD (Ex. 7–108).

Several participants noted that most asbestos work would not be assigned to a single worker, and SSSD should include only jobs completed by 2 employees in one work shift (Ex. 7–31): Preston Quirk of Gobbell Hays Partners, Inc. suggested that a maximum of 3 workers be allowed (Ex. 7–34). Organization Resources Counselors, Inc. (ORC) maintained that the specification of the number of workers was not necessary, as long as the employer had a comprehensive safety and health plan. (Ex. 7–99).

The views on these defining variables has influenced the Agency's decision to broaden and realign its job classification system based on relative risk. Based on this record and the agency's experience in enforcing the 1986 standard's provisions on small-scale, short duration work, OSHA is dropping the term "small-scale, short term" work from the regulatory text. The agency finds that the term "small-scale, short term" is too limiting, has been shown to be confusing, and cannot be defined with sufficient precision to serve the purpose of distinguishing high risk asbestos-disturbing activity from activity of reduced risk.

The term is limiting because it focuses on a fraction of the circumstances and criteria which define lower risk work with asbestos-containing material. OSHA has found that thermal system insulation (TSI) and surfacing material are the asbestos-containing building materials likely to produce significant employee exposure. On the other hand, removing asbestos-containing products like transite panels, likely will not result in significant exposure, even if conducted for more than one day, under minimum controls. As much as the scope and duration of the job, the materials themselves, their condition and the work-practices used define hazard potential.

OSHA's organization of asbestos jobs into categories is based on the more objective criteria, such as the type of material to be disturbed and the type of activity. Factors which are more subjective, such as condition, and crew experience are part of the required pre-job assessment by a "competent person." Not concentrating on the amount of asbestos material or the time the job takes, avoids serious objections raised by rulemaking participants to the time- or volume-based definition in the proposal. For example, a frequent complaint was that the duration of the operation should not be specified in the definition of small-scale activities because this might create incentives to perform the work more hurriedly and in a more hazardous manner when the worker must meet defined time schedules (Ex. 7–18, 7–35, 7–37, 7–43, 7–50, 7–52, 7–54, 7–63, 7–74, 7–76, 7–81, 7–87, 7–89, 7–95, 7–99, 7–106, 7–112, 7–124, 7–128, 7–135, 7–139, 7–146, 7–151, 143, Tr. 417). (In a few regulatory provisions, however, OSHA still relies on the amount of material to be removed to indicate risk, and thus, the protections required. These are the exemption from critical barriers from low-exposure Class I jobs [see paragraph (g)(4) and in defining "disturbance"]).

This classification system is OSHA's response to the Court's remand issue of how to clarify the term "small-scale, short duration." (see also preceding discussion of classes of asbestos work under "Definitions.")

Class I Work

Class I work, i.e., the "removal" of TSI or surfacing ACM or PACM, must be performed using procedures in paragraph (g)(4) and using a control method which is listed in paragraph (g)(5) of the standard. If another control method is used, or if a listed control method is "modified," the standard in paragraph (g)(6) requires that a certified industrial hygienist (CIH), or licensed professional engineer who is a "project designer," certify the control method using the criteria set out in the regulatory text. The requirements of (g)(4) are: for Class I jobs, preparation must be supervised by a competent person, dropcloths must be used and HVAC systems must be isolated. The area must be set up using "critical barriers' either as part of a negative pressure enclosure system, or as a supplemental barrier to another listed system which isolates the asbestos disturbance in a different way. Other barriers or isolation methods may be used to prevent asbestos migration. The effectiveness of such methods must be proven by visual inspection and clearance or perimeter monitoring (see e.g., Ex. 9–34 cc). As noted below, OSHA believes that the size of the removal job alone does not predict the risk to workers. However, if a job is smaller, the chances are reduced that isolation barriers provided by glove bags or boxes will fail.

OSHA was reluctant to limit glove bag removals without critical barriers only to maintenance projects, where as NIOSH noted, it is more likely that crews will be untrained (Ex. 125). Rather, OSHA has followed the lead of some states, which allow removals involving less than 25 linear feet of TSI, and 10 square feet of other material to be handled without critical barriers, unless the glove bags or enclosure loses its integrity (see e.g., 12 NYCRR 56) or where a negative exposure assessment has not been produced. Such projects are class I removals, and workers required to perform them must be trained in an EPA-accredited training course or equivalent; OSHA believes that the work force performing these relatively minor removals is the same work force performing major removals, thus the jobs will be well-conducted and critical barriers will be unnecessary.

In addition, where the employer cannot demonstrate that a Class I job is likely not to overexpose employees, the employer must ventilate the regulated area to move contaminated air away from employee breathing zones.

Paragraph (g)(5) sets out five listed control methods which OSHA has evaluated during this rulemaking. The Agency finds that using these methods pursuant to the limitations and specifications in the paragraph is likely to effectively control employee exposures when performing Class I work. The first control system listed for Class I work is the Negative Pressure Enclosure System (or NPE). The extent to which OSHA should require these systems for major asbestos work was a remanded issue. As discussed in detail below, OSHA has found that NPEs, when constructed and used according to the criteria in this standard, can be effective in protecting employees within and outside the enclosure.

Other listed systems also may be used for Class I work under stated limitations. Paragraph (g)(5) sets out these limitations. These systems are: glove bag systems, negative-pressure glove bag systems, negative pressure glove box systems, the water spray process system, and a mini-enclosure system. OSHA emphasizes the use of the term "system." Each method consists of tangible materials and devices; and of procedures and practices. All the listed elements must be complied with before OSHA's finding of effectiveness are relevant. Other, unspecified control methods, "alternative control methods," may be used if additional notification is given OSHA, and if a specially trained "project designer" or a certified industrial hygienist certifies that the controls will be protective.

Participants in this rulemaking requested that OSHA's revisions allow alternative systems. OSHA agrees that asbestos removal technology is evolving. If another control method is used, or if a listed control method is "modified," the standard requires that a certified industrial hygienist or licensed professional engineer who is also qualified as a project designer certify the control method using the criteria set out in the regulatory text. Additional discussion of these issues is found later in this document.

Specific Issues Relating to Methods of Compliance

1. A major issue in this proceeding is when NPEs should be required. In the 1990 proposal OSHA would have required the erection of negative pressure enclosures for all asbestos removal jobs, except for "small scale short duration work." This proposal responded to the Court's order for OSHA to clarify the conditions under which negative pressure enclosures were required in the 1986 standard (see discussion on Issue #3).

The major rationale in the 1986 standard for requiring negative pressure enclosures was to ensure that contamination from large-scale asbestos projects did not spread beyond the work area. OSHA there stated that "general contamination of the workplace has resulted from failure to confine asbestos using strict regulated area procedures, and asbestos-related diseases have been found in workers of a different trade exposed to asbestos contamination from the activities of asbestos workers." (55

FR at 29716). The effectiveness of NPEs in protecting employees working within the enclosure was not the explicit basis for their adoption in the 1986 rule.

In the 1990 proposal, OSHA primarily based the requirement for universal NPEs for major asbestos work on limited data relating to contamination of workspaces adjacent to asbestos work, and reports of historic disease experienced by employers in trades other than asbestos work who worked alongside asbestos workers. OSHA stated however, that the Agency "has not been able to estimate the risk to bystander employees * * *" and asked for comment and data on their exposure (55 FR 29716). OSHA also asked for information about alternatives to work in full containment, such as glove bag and box systems and "new technologies" (55 FR 29717). Although OSHA proposed more tightly drawn exemptions to the required use of negative pressure enclosures, the Agency also raised the possibility that data to be submitted about alternative control systems might result in a limitation, rather than an expansion of the walk-in enclosure requirements (55 FR 29720).

Further the 1990 proposal specifically focused on whether work within walk-in enclosures was the optimum method to protect asbestos workers. It is widely accepted that employees who disturb asbestos, and who contact deteriorated asbestos during their work are most at risk (see e.g., Ex. 1–344, p. 1–12). In its earlier response to the Court's remand, OSHA noted that the "record of the 1986 standard contains no data concerning whether employees working within the negative pressure enclosures also benefit from reduced exposure, whether working inside enclosures may introduce other potential work hazards such as heat stress. Further rulemaking is necessary to develop this information." (54 FR 52026, Dec. 20, 1989). In the proposal, OSHA reiterated this statement and again raised this issue (55 FR 29715).

The rulemaking record reflected this two-part inquiry. Data and comment were submitted concerning the effectiveness of NPEs in protecting employees within the enclosure, and their effectiveness in protecting "bystander" employees and adjacent areas from asbestos contamination. The record presents a mixed case on both issues. First, very limited data were submitted showing that employees working within the enclosures experienced reduced asbestos levels because of the enclosures themselves, or the ventilation provided by negative air machines, in spite of claims that the enclosures and ventilation produce such results. In fact claims were made that in comparing work within enclosures to work without enclosures, "enclosures consistently came out higher in terms of what the person inside the enclosure is exposed to" (Exxon, Tr. 2678). However, the record contains some data which show that properly designed and installed NPEs may limit the spread of asbestos contamination to adjacent areas and employees. However, the record also demonstrates that other systems, properly installed and performed by trained employees will also limit the spread of asbestos contamination. These are discussed in depth below.

Based on this record and on the Agency's experience and expertise, OSHA has concluded that although negative pressure enclosure systems are effective in many circumstances in protecting workers both within and outside the enclosure, other systems are equally effective in designated circumstances. Additionally, the demonstration in this rulemaking that other systems can be effective, supports regulatory provisions which do not stifle continued development and refinement of control strategies for asbestos work.

2. Effectiveness of NPEs in Protecting Employees Working Within the Enclosure

As noted above, little data were submitted showing that employees working within the enclosure have reduced exposures because of the enclosure itself, or other components of the NPE system. Although much data was alluded to during the hearing, e.g., "* * * 10 years of real, real projects with rooms full of data, * * * we have some nice summaries that I can give you * * *."(Tr. 3133). However, none of these data was submitted to the record. Also, NIOSH testified during the rulemaking hearing, "we are not aware of any studies evaluating their (negative pressure enclosures) effectiveness or delineating important parameters such as minimum pressure differential, minimum air flow, or maximum volumes feasible for various barrier materials." (Tr. 228). BCTD noted a study in which "two MIT researchers estimated "that total exposures using the HEPA negative pressure system might be about four-fold less than they would be without the system" (Ex. 143 at 90). OSHA notes that this estimate was derived from "assumptions" of the study team, and was unsupported by exposure data. Further, the baseline exposure model was based on a much earlier study of activities cleaning up contamination in a building. During this rulemaking hearing, the author of that study described it as "extremely unique, * * * not representative of buildings in the United States" (Tr. 2157). OSHA therefore regards the MIT exposure reduction estimate as unsupported and too speculative to serve as a basis for regulatory decision making.

Exposure data submitted to this rulemaking record which reflected personal samples within negative pressure enclosures do not support the view that working within such enclosures by itself will ensure reduced employee exposure. In fact, data were submitted which showed that employees working within negative pressure enclosures under some circumstances were exposed to excessive levels of asbestos (see below). OSHA recognizes that a showing of elevated levels from any one project or series of projects does not indict the control method as the cause of such elevations. However, numerous submissions from various sources which show elevated exposure levels with no indication of improper system installation indicates that in operation, the use of negative pressure enclosure systems does not assure effective exposure reduction to the employees performing the work.

Thus, Union Carbide submitted 1,000 exposure measurements "generally obtained from jobs where insulation was removed from piping of 1" -14" diameter and from other miscellaneous jobs removing asbestos from vessels" (Ex. 7–108). More than one half of the samples were over the proposed PEL of 0.1 f/cc, and most of those were over the previous PEL of 0.2 f/cc. Additional data showing high exposures within negative pressure enclosures compared to relatively low exposure levels for glove bag use were submitted by Arco Products, Inc. (Ex. 7–139) and Grayling (7–144). The Arco submission contained monitoring results from 9 personal samples taken within the enclosure. These ranged from 0.01 to 0.44 f/cc with a mean on 0.28 f/cc. Lower exposure levels for work within NPEs was shown by data submitted by the Asbestos Abatement Council, presenting data incorporating air monitoring results for over 200 projects, collected from four different contractors over an eight year time period. These data showed area samples ranging from 0.12 to 0.15 f/cc, while personal samples ranged from 0.03 to 0.07 f/cc (Ex. 1–142).

Various reasons were advanced for the presence of elevated exposure levels within negative pressure enclosures. Thus Dr. Sawyer testified "I have seen configurations that not only don't work

maintaining the enclosure integrity, but they actually can increase fiber burdens in the contamination area * * * (t)his involves * * * a HEPA filter by itself without a drive mechanism, without a fan to force air through it" (Tr. 2176). "I can anecdotally tell you what I've seen out there, but a lot of the systems just don't work, and some of them can actually increase the hazard to workers" (Id at 2177–78).

In view of the disparity in the submitted data, OSHA concludes that negative pressure enclosure systems, like other control systems which depend on proper installation, design and supervision for effectiveness, can vary in protection they afford to employees working within. Unlike engineering systems permanently installed which are capitalized by the facility owner, negative pressure systems are installed for the duration of the job, and economic pressures are exerted to hold down the time and cost of the installation.

Thus, the support for the use of NPEs to reduce employee exposure is mixed. OSHA is also concerned that other health and safety hazards may result from work in negative pressure enclosure systems. For example, problems with toxic adhesives were noted in the record. Levels of methylene chloride, used to seal poly sheeting to underlying surfaces to contain work areas have been measured at over the PEL for that substance (Ex. 1–24). Some of the polyethylene used for sheeting may be combustible (Ex. 7–18). Certain industries reported particular hazards of NPEs. For example, a representative of Arco Products Co. commented that in the gasoline industry hazards included: build-up of gases inside the enclosure, heat stress, fire hazards, lack of good ventilation, difficulty in working with mobile equipment, difficulties in communicating and exiting during emergencies (Ex. 7–139).

Various solutions to these problem were suggested. Thus, it was suggested that less toxic adhesives be substituted for methylene chloride; that poly sheets can be attached without adhesives (BCTD, Ex. 143); that heat stress be eliminated by increasing the number of air changes per hour within the enclosure; that a transparent window be installed in each enclosure to facilitate communication (Ex. 7–6); and other such adaptations. Certain of these suggestions were criticized as ineffective. For example, Union Carbide stated in its post-hearing submission, "(w)e have observed that even when 8 to 12 air changes per hour are provided to the enclosure, on certain days the inside of the enclosure temperature has risen as high as 140 degrees F. The heat stress situation is further exacerbated by the body coveralls worn by the workers" (Ex. 113 p. 6).

OSHA believes that some of these potential problems attributable to negative pressure enclosures may be averted. However, the record also indicates that the use of this control technique shares with other asbestos control methods, a primary reliance upon the skill and training of designers and workers to assure its effectiveness. In addition, under some circumstances even the proper use of negative pressure enclosures can introduce additional hazards into the workplace.

One feature of some negative pressure enclosure systems, negative air ventilation, was singled out by some participants as the primary means of reducing exposures to employees working within them. OSHA notes however, that the requirement for NPEs as adopted in the 1986 rule, did not contain any criteria for such ventilation, and that the rationale for requiring NPEs did not rest on the capability of ventilation to reduce employee exposure. Therefore, OSHA regards the recommendation for requiring special ventilation as a new claim, to be supported by evidence and testimony submitted to this record.

One of the main characteristics of the negative pressure enclosure system is that the air pressure inside the enclosure is less than outside the enclosure. This pressure difference is created by a fan exhausting air, through a filter, from inside the enclosure to outside the enclosure. Under negative pressure, any leaks in the walls of the enclosure will result in clean air coming into the enclosure, rather than contaminated air leaking to the outside. The system is primarily designed to keep asbestos from contaminating the building. As stated earlier, this approach does not appear to improve working conditions inside the enclosure. Negative air ventilation draws clean air from outside the enclosure at sufficient quantities and at strategic locations, so as to provide clean air in the worker's breathing zone. Support for negative air ventilation was submitted by numerous participants. For example, Mr. D'Angelo testified that "negative air ventilation is the single most effective engineering control reducing worker exposure as well as reducing the risk to adjacent bystanders or other operations." Further, he recommended a minimum of 8 and up to 20 air changes per hour to assure appropriate ventilation is maintained (Tr. 3078, 3087). This process, "which has expanded on the negative pressure enclosure, (is) called air flush methodology" (Tr. 3085).

Other participants also supported the use of "air flushing" techniques, or directed make-up air. Chip D'Angelo, an asbestos abatement consultant described the principle as moving airborne fibers out of the work area with air velocity, thereby "flushing" the area by bringing in air from sources outside the enclosure additional to that brought through the decontamination chamber. He further described moving the air away from the worker and toward the negative air filtration machines and directing the moving air to "dead spots" in the enclosure by use of baffles and flexiducts (Tr. 3035) (see BCTD, Ex. 143 p. 90, and citations therein). Mr. Cook, an asbestos abatement contractor, appearing for the BCTD, testified that "it's a fairly easy technology to implement, depending on the situation."(Tr. 805). Mr. Medaglia, president of an engineering firm suggested adding to the definition of a negative pressure enclosure, the phrase "* * * all areas within the enclosure are swept by the flowing air towards the exhaust fans * * *" (Tr. 3052). Other support was provided by New Jersey White Lung Association (Tr. 601–2), NIOSH (Tr. 228 and 257), R. Sawyer (Tr. 2161), D. Kirby (Tr. 170), Global Consumer Services (Tr. 2341) and J. Cook of QSI International (Tr. 804.)

However, some engineers who testified did not utilize the technique; Exxon noted in its testimony that "you can't, quite honestly, get enough volume of air velocity to convince yourself you are going to get good equal mixing within an entire enclosure" (Tr. 2680); and NIOSH noted in its submitted testimony, that "we are not aware of any studies evaluating their effectiveness (NPE's) or delineating important parameters such as * * * minimum air flow" (Ex. 9). NIOSH recommended that OSHA incorporate into the rule for negative-pressure enclosures, design requirements for air-flow patterns within the enclosure to move airborne particles away from the worker" (Ibid).

Although "air flushing" is the ventilation approach most recommended for use within negative pressure systems, actual data showing its success is limited. In recognition of the support from engineers who have utilized these systems, OSHA is requiring a performance based version of "air flushing" as a component of the negative pressure enclosure system. OSHA is also requiring ventilation which "directs the air away from exposed employees" when other controls are used for Class I work where

no there is insufficient data to support a "negative exposure assessment."

Participants also argued that the use of negative pressure systems under stated circumstances was unnecessary and would not contribute to employee protection against asbestos exposure. Working outdoors was one such circumstance. Amoco submitted data in which 95% amosite was removed from an outdoor pipe run without negative pressure enclosure in which most samples indicated very low fiber levels (Ex. 7–39). However, the following work practices were also used: restricted access, immediate and double bagging of debris or use of airtight chutes, barricaded area, use of HEPA equipped vacuums, respirator, decontamination procedures, and training and supervision of the operation by a competent person.

OSHA believes that outdoor Class I work may be safely done without enclosures. Therefore, paragraph (g) allows all outdoor Class I work to be conducted using other control methods, such as a glove bag system, so long as the specifications and work practices for such systems are followed. In addition, decontamination procedures for all Class I work, outdoors as well as indoors, including decontamination facilities and showers, must be made available for all Class I work, including that performed outdoors.

As discussed above, the negative pressure enclosure requirement in the 1986 standard lacked specificity. BCTD recommended that OSHA specify the number of air changes per hour required in the negative pressure enclosure (Ex. 143, p. 94). They reasoned that this would improve ventilation within the enclosure and reduce worker exposure. Union Carbide testified that they use 8 to 12 changes per hour (Tr. 2255) and Chip D'Angelo recommended 10 changes per hour (Ex. 99). New Jersey White Lung Association representative suggested 8 changes per hour (Tr. 482). BCTD and others also proposed that the negative pressure differential be increased from the recommended 0.02 column inches water in Appendix F (Ex. 143, p. 95) "because of fluctuations inside the enclosure."

In several published articles, Spicer and D'Angelo expressed their support for these recommendations and further suggested that pressure measurements be made at several points within the enclosure (Ex. 9–34 NN, Tr. 3126). The use of a manometer to measure the pressure differential between the enclosure and the area outside the enclosure was also supported by BCTD and D'Angelo and Spicer primarily because this device would provide immediate notice if there were a loss of pressure and therefore increased potential for fiber escape (Ex. 143, p. 96 and Ex. 9–34 NN). He estimated the cost of a manometer at $20.00 (Tr. 3078).

BCTD submitted additional recommendations which it felt would improve negative pressure enclosure use:

—Use additional air filtration machines in areas of especially high fiber concentrations, to serve as "scrubbers"
—Use at least one negative air filtration machine per room in multi-room enclosures
—Provide an independent power source and back-up HEPA unit for use in case of failure
—Smoke test the enclosure for leaks
—Pre-filter inlet air (Ex. 143, p. 97)

Most of these recommendations appear to be beneficial. Requiring smoke testing to detect leaks is adopted by the Agency as part of required set-up procedures when such enclosures are used. Others, such as requiring "additional air filtration machines * * * where exposures are especially high" appear to be sound engineering advice but would present enforcement problems, if included in the regulatory text (Ex. 143). Instead, as part of the mandatory criteria for NPEs, when used to control exposure in Class I jobs, the Agency is requiring "competent persons" to oversee the installation of such systems, and employees to be protected within such enclosures by ventilation systems which minimize their asbestos exposure. OSHA believes that its provisions on negative pressure systems will protect employees working within them.

Based on the above extensive analysis of the many studies and comments, OSHA has concluded that NPEs are not appropriate as a universal requirement. They usually protect bystanders well, but not always workers within the enclosures, and can sometimes create other problems. Consequently, OSHA is permitting alternatives to NPEs in appropriate circumstances and is upgrading requirements for NPEs when they are used.

Also, OSHA believes that various alternative requirements in this final revised standard triggered by Class I, II, and III work, some of which are components of negative pressure systems will protect adjacent or "bystander" employees under most situations. Thus, mandatory critical barriers for most Class I, some Class II and III work will bar passage of fugitive asbestos fibers; and, clarifying the responsibilities of the various employers on a multi-employer worksite, paragraph (d) will protect *all* work site employees from fugitive emissions.

3. What Other Control Systems Can be Allowed for Asbestos Work Which Involves High Risk Materials?

OSHA is allowing other control systems for Category I asbestos work, but only under stated conditions. Thus, the second asbestos control system permitted for use for Category I asbestos work is a glove bag system which meets the requirements of the standard, and is used only in the limited situations listed in paragraph (g), i.e. straight runs of piping and to remove intact TSI.

Other technologies recommended by the accredited project designer or competent person based on supporting data showing their effectiveness may also be used. Whenever a technology is used which is not referenced in the standards, the employer must notify OSHA before the asbestos job, and include in the notification the basis for the project designer's or certified industrial hygienist's decision that the new technology will be equally effective as other technologies referenced in the appendix. Daily personal and periphery area monitoring must be conducted for all such jobs, as well as clearance samples at the termination of the abatement job.

Glove Bag Systems

The decision to allow increased glove bag use is based on the considerable comment and evidence submitted during this proceeding concerning the safety and effectiveness of glove bag use. OSHA had proposed to permit only small-scale, short duration removals to be conducted using glove bags; however the Agency noted that it was considering whether alternatives, including glove bags, to negative pressure enclosures for renovation, removal and demolition operations should be allowed (55 FR at 29716).

In the 1986 standard, glove bag effectiveness was considered too uncertain to allow as a preferred control. Therefore OSHA relegated glove bag use to small-scale, short duration jobs, or jobs exempt from the negative pressure enclosure requirement because of the configuration of the work environment. However OSHA noted that glove bag use could generally be expected to reduce exposures to below 0.1 f/cc (51 FR 22711).

In the preamble to its proposed amendments the Agency noted that available data indicated that glove bags in use may not always provide adequate protection. In large part, the Agency based this preliminary evaluation on the results of an evaluation performed by

NIOSH in which improperly used glove bags resulted in excessive fiber counts.

As noted above, this final construction standard expands the conditions in which glove bag use is allowed. Now, glove bag use for removal of TSI and surfacing ACM is allowed without quantity limitation for intact TSI for straight runs of piping.

OSHA believes these decisions are well supported by this rulemaking record. Many participants urged OSHA to expand the conditions for permitting glove bag use. For example the Dow Chemical Company stated, "removal of asbestos containing material from pipes or pipelines can best be accomplished with the use of glove bags in all instances, not just when pipes are elevated. Needless to say, the employees carrying out the operation must be trained and adequately supervised to the glove bags properly." (Ex. 7–103). The American Paper Institute and the National Forest Products Association stated that "(w)e fully agree with the field personnel that there should be no linear footage limit for the removal of asbestos insulation on pipe when proper glove bag techniques are used" (Ex. 7–74 at 9). The National Insulation and Abatement Contractors Association commented "(a) skilled asbestos abatement mechanic can certainly remove in excess of 21 linear feet in properly used glove bags in as safe a manner as he or she can less than 21 feet. * * * (i)n addition, the implied restriction against glove bag use outside of small-scale, short-duration work ignores the advances made in glove bag practices and worker skills" (Ex 7–72 at 2).

Mr. Vest of the U.S. Air Force commented: "(t)he regulation should clearly allow for * * * operations that are not small-scale, short duration but are also not within the purview of the full requirements for a regulated area. We believe multiple glove bag operations would fall into this category; this in-between category should require training and additional procedures, but not necessarily "negative pressure enclosures." James Snyder, representing the American Paper Institute, maintained that there should be no linear limit as long as proper glove bag techniques were used (Ex. 7–74). Exhibits 7–9, 7–19, 7–21, 7–26, 7–32, 7–33, 7–50, 7–63, 7–72, 7–73, 7–74, 7–76, 7–95, 7–99, 7–102, 7–103, 7–106, 7–107, 7–120, 7–121, 7–125, 7–128, 7–130, 7–139, 7–144, and 7–146 also supported expanded glove bag use.

In addition, to these generalized statements of support for expanded use of glove bags, participants submitted data to show the effectiveness of glove bags in protecting workers. For example, the U.S. Air Force, introduced data (Ex. 3–9). The large majority of measurement were below 0.1 f/cc. Only 54 of the 370 measurements sets were over 0.1 f/cc, some of which were within the sampling and analytical error margin of 25%.

Dr. Vernon Rose of the University of Alabama at Birmingham submitted a paper entitled: "Analysis of PCM asbestos air monitoring results for a major abatement project" (Ex. 7–194), in which over 2000 sampling results were presented, taken over a five year period during which thermal system insulation was removed from a single building. This study provides very extensive data on closely observed work which the authors described as "* * * ideal conditions existed to support the proper abatement of ACM" (Ex. 7–194). However, they also noted that the environment was generally quite dusty and that since the results were PCM counts, they might overestimate the true exposure level. The results are summarized Table I.

TABLE I.—ASBESTOS FIBER LEVELS DURING VARIOUS REMOVAL OPERATIONS

[Ex. 7–194]

Sample description	No. samples	Mean (f/cc ^{3})	Confidence interval
Full enclosure-entrance	303	0.026	0.021–0.033
Full enclosure-background	333	0.022	0.019–0.025
Mini-enclosure-entrance	35	0.022	0.016–0.036
Mini-enclosure-background	38	0.023	0.013–0.058
At glove bag	430	0.037	0.034–0.041
Glove bag-background	386	0.028	0.025–0.031
Full enclosure-clearance	161	0.002	0.002–0.003
Mini-enclosure-clearance	94	0.006	0.005–0.008
Pre-work	39	0.013	0.010–0.018
Full enclosure-personal	116	0.233	0.177–0.327
Full enclosure-within	160	0.119	0.097–0.152

Except for those taken within the negative pressure enclosure, all sample means, including those taken at and away from glove bags are well below the new PEL of 0.1 f/cc.

In OSHA's view, the large amount of data contained in this study demonstrating that exposure levels *at* the glove bag consistently were well below the PEL of 0.1 f/cc supports the effectiveness of glove bags in protecting the asbestos worker.

Additional data were submitted by Grayling Industries and Control Resource Systems, Inc., glove bag manufacturers (Ex. 7–144). Personal breathing zone measurements representing varied removals are almost all below OSHA's proposed PEL of 0.1 f/cc. After the hearing, Grayling submitted letters from some of the contractors and organizations in charge of the projects for which data was submitted, which detailed the procedures followed by employees during the jobs where low exposure levels were recorded. (Ex. 111). These conditions correspond to the specifications and work practices which OSHA is requiring in this standard for glove bag use.

Virtually all of the participants who opposed expanded use of glove bags for removal jobs, cited the NIOSH study referred to above. (See e.g. Ex. 143 at 98–100). The study was conducted jointly by NIOSH and EPA in 1985, and its results were made public, as a Health Hazard Evaluation (Exs. 1–1, 1–2, 1–20). It has also formed the basis for NIOSH's institutional position on glove bags published as "An Evaluation Glove Bag Containment in Asbestos Removal" in October 1990. (submitted post-hearing as Ex. 125). Based on the data and analysis in that document, NIOSH's spokesperson, Richard Lemen testified at the rulemaking hearing:

> NIOSH has found that airborne fibers are released in the work place when glove bags are used to remove asbestos pipe. Although

the reasons for these releases were not determined, the study indicated that glove bags did not control asbestos exposures as anticipated. Thus, NIOSH strongly supports OSHA in requiring that negative-pressure enclosures be used in conjunction with glove bags. Furthermore, NIOSH recommends that OSHA require the use of respiratory protection when glove bags are used. At a minimum, NIOSH recommends that workers should be required to wear the most protective air-purifying respirators * * * (Tr. 229)

The study evaluated the removal of asbestos containing pipe lagging using glove bags from four public school buildings. The data were obtained during week-long surveys in each of the buildings. According to the abstract in the evaluation: "the same work crew removed asbestos-containing pipe lagging in all four schools. Personal exposures to airborne fibers were determined using the NIOSH method" (Ex. 125). NIOSH summarized the results: "* * * In three of the four facilities studied, workers were exposed to airborne asbestos concentrations above the OSHA PEL. Only in the last building where the removal took place, were exposure levels reduced to below the new OSHA PELs."

Interpretation of the results of this study varied. BCTD viewed the study as supporting its view that glove bags should not be permitted for other than small scale, short duration jobs because they do not provide reliable protection for bystanders. (Ex. 143, p. 98). HEI concluded, based on the NIOSH study, that "* * * glove bags should never be used as a stand alone abatement isolation procedure for long pipe runs" (HEI, Ex. 1–344, p. 5–48). Clearly these results call into question any expansion of permitted glove bag use. However, after paying close attention to the conditions, personnel and equipment utilized in the NIOSH study, and to the rest of the record, OSHA believes that glove bag systems, when properly deployed and supplemented by barriers, are capable of protecting both the abatement worker and bystander employee.

Details of the improper usage in the NIOSH study were pointed out by Grayling and CI and by the NIOSH investigators themselves; "the methods employed by workers * * * violated current state-of the art glove bag procedures * * * (t)he glove bags contained over four times the recommended material, they were opened up and slid down the pipe, * * * (t)hey were used as a receptacle rather than as a glove bag, * * * the envelope was slit to speed the removal process, * * * bags were being sealed while removal was taking place * * *" and other improper procedures (Ex. 130, Ex. 125). In addition, although NIOSH noted "[w]orker training and experience are important components in a reliable system of control measure, * * * (in this study) the work crew was not trained in the proper use of glove bags" (Ex. 125, p. 20).

Representatives of the glove bag industry also noted that since the study was undertaken in 1985–86, the equipment used by the workers, has been replaced by better designed and more protective equipment and materials. For example, one of the glove bags used in the study employed a zippered connection system, which "promote(s) the free flow of contaminated air from the glove bag during removal * * *," and the "one-size fits all" glove bag has been replaced by a "greater number of designs and configurations of glove bags * * * (for) T's, elbows, valves, verticals and extended runs" (Ex. 130, p. 3).

The study showed that by the time the removal activity reached the fourth (final) building, the work crew, having been "trained" by a variety of on-the-job methods, such as "trial and error," advice from the survey team, and watching a videotape, exposure levels were dramatically reduced. The pre-removal levels were not lower at the final facility, approximately the same amount of asbestos was removed as in the other operations and the authors stated that the lagging was in generally good condition throughout the study—lending further credence to the hypothesis that the use of improved work practices led to generation of lower fiber levels. The report concluded with a list of recommendations for work practices for glove bag use.

OSHA believes that the NIOSH study should be viewed as a demonstration of poor work practices by untrained employees. The Agency notes that although the NIOSH study contains carefully presented and analyzed exposure data, the study design was compromised by the intervention of the investigators in instructing the workers. Further, since the workers were untrained, and for the most part did not use the glove bags correctly to attempt to isolate the disturbances, the study is of limited utility in identifying problems of glove bag systems when they are used correctly.

NIOSH speculated that ignorance of proper glove bag procedures was common for plant maintenance personnel, asbestos operations and maintenance personnel, and many asbestos removal contractors who use glove bags only occasionally" (Ex. 125, p. 53). If indeed this is so, it suggests that short of prohibiting glove-bag removals entirely, restricting permitted usage to, for example, maintenance work (small-scale, short-duration work) may result in limiting permitted glove bag work to where it is likely to be performed incorrectly. It also suggests that, the frequency of glove bag work, rather than the size of the removal project is more relevant to its effectiveness. Other participants echoed this caution, for example, David Kirby of Oak Ridge National Laboratory testified that glove bag usage should be conditioned on showing quarterly frequency of glove bag usage (Tr. 116–17).

OSHA concludes that when conscientiously used by well-trained, well-supervised personnel, glove bags can effectively reduce asbestos fiber release. The NIOSH study demonstrated clearly that the obverse is also true; when glove bags are used improperly by untrained or insufficiently trained workers, airborne fiber levels can become significantly elevated. Consequently, based on this extensive evidence and analysis, OSHA is permitting wider use of glove bag technology in the final standard, but is including additional requirements to improve the effectiveness of their use. The Agency notes that the new regulatory text prescribing the specifications and work practices for allowable glove bag removals would prohibit the kind of removal activity observed in the NIOSH study.

Based on its study, NIOSH recommended detailed work practices and specifications for glove bag use. OSHA has incorporated the major recommendations into the standard, either as part of the overall requirements for asbestos removal, or as required components of permitted glove bag systems. For example, NIOSH recommends that workers "spray frequently during the removal process so that newly exposed surfaces are wetted." OSHA requires that all work be performed using wet methods. "Wet methods" are defined as, applying sufficient water to ACM and PACM during the work operation so that fibers, if released, are prevented from becoming airborne. Other recommendations likewise are covered by more generic requirements.

For Class I work in which glove bags are used, OSHA is requiring that 2 persons perform the glove bag removal. BCTD recommended that 2 persons perform glove bag work stating that "* * * the operation can be hard-pressed to adjust the HEPA vacuum flow rates or water pressure in the sprayer while his/her hands are in the

bag" (Ex. 143, p. 125). BCTD also felt that proper decontamination required a "buddy system" involving a second worker.

Exxon representative, Mr. Booher, testified that their practices is to have 2 persons per glove bag (Tr. 2673). Mr. Sledge of Naval Sea Systems Command testified that two personal normally perform glove bag operations in their facilities, usually using glove bags under negative pressure (Tr. 420). OSHA agrees and believes that proper use of glove bags in removing high-risk ACM (TSI and surfacing ACM) requires at least two persons. The Agency also notes that required training of employees must cover detailed glove bag procedures. Many of the detailed work practices recommended by NIOSH are advisory, i.e. use "sprayer of sufficient length," will be covered in training, and/or are encompassed by more general requirements.

Other Systems

Although glove bag systems were the alternative system most discussed during the rulemaking, participants submitted data on other systems which were claimed to effectively isolate asbestos dust during removal. The Agency has reviewed the data and comment on these submissions and has listed four additional systems as permitted for Class I work under stated circumstances in paragraph (g)(5). The Agency emphasizes that the listing of any system is not an endorsement by OSHA. The listing merely indicates that various combinations of engineering controls and work practices represented by these systems, when properly carried out, and when all other provisions of these standards, e.g., training, competent person supervision, exposure assessments and respirator use where required, are found by the Agency on this record to constitute effective means of controlling employee exposure to asbestos.

Two of the systems are modifications of glove bag systems. One, a negative pressure glove bag system, was presented as an alternative by several participants. One witness stated that "the nuclear ship repair industry has used pipe containment glove bags for years * * * all of this work has been required to be performed with constant negative pressure being maintained inside the glove bag during removal operations" (Tr. 3028). A panel testifying on behalf of Union Carbide described a negative-pressure glove bag technology which they have developed (Tr. 2192 and Ex. 7–108). M. Patel, an industrial hygienist at Union Carbide, described it in his written testimony:

The glove bag system is used as follows: The glove bag is connected to the glove/hose connector. All the tools needed to remove asbestos are placed in the inner pouch of the glove bag. The bag is installed on a pipe utilizing the zipper provided at the top. The shoulder is fastened on both ends of the glove bag with tourniquets. The rest of the system is connected. The insulation is wetted with amended water using the portable garden sprayer. The asbestos is cut and falls through the open sliding gate valve and collects in the waste bag. Vacuum in the bag and in the rest of the system is adjusted to prevent collapse of the bag. When the asbestos waste collected in the bag is almost full, the sliding gate valve is closed as the vacuum in the system is slowly controlled by adjusting the splitter valve, and the bag is carefully sealed and removed. A new bag is installed and the sliding gate valve opened. When all asbestos inside the glove bag is removed, the pipe and the wall of the glove bag above the middle zipper inside the bag are rinsed with amended water. The middle zipper is closed to isolate the upper compartment while vacuum is still being pulled.

The tourniquet on either end of the glove bag is loosened and the bag is moved to the next position. The middle portion of the bag is unzipped and the work is continued Ex. 9–43).

The panel members reported that the mean value of the exposure for the modified negative-pressure glove bag was 0.02 f/cc.

In a post-hearing submission, Union Carbide submitted a large number of additional measurements from various operations supporting the relative effectiveness of their negative-pressure glove bag method of asbestos control. These data showed both glove bags and negative pressure glove bag personal exposure levels were low, and well below those for negative pressure enclosures as measured by the company.

TABLE II.—ASBESTOS FIBER LEVELS DURING REMOVAL OPERATIONS

[Ex. 113]

Operation	No. samples	Sample type	%>0.1 F/CC
Glove bag ...	2,280	Area	2.3
Negative-pressure enclosure.	1,220	Area	16.4
Glove bag ...	2,361	Personal ...	22.7
Negative-pressure enclosure.	1,001	Personal ...	60.9
Negative-pressure glove bag.	90	Area	1.1

TABLE II.—ASBESTOS FIBER LEVELS DURING REMOVAL OPERATIONS—Continued

[Ex. 113]

Operation	No. samples	Sample type	%>0.1 F/CC
Negative-pressure glove bag.	80	Personal ...	10.0[1]

[1] mean of those >0.1 f/cc=0.21 f/cc, the overall mean=0.046 f/cc.

Some of the exposure monitoring results showed personal samples above the new PEL of 0.1 f/cc. Union Carbide suggested, that employees performing Class I work using the modified negative pressure glove-bag, wear respiratory protection. OSHA is requiring that all employees who perform Class I work wear respirators.

Additional data on negative pressure glove bags showing effective exposure reductions was submitted by others, including NIOSH (Ex. 1–125, 1–126). "Opinion evidence" was that negative pressure glove bags, when properly used, offered an additional margin of safety over non-negative pressure glove bags (see e.g., testimony of David Kirby, Tr. 188).

Based on these data, OSHA is allowing negative pressure glove bags for Class I work, subject to similar limitations as "regular" glove bags.

Another method allowed for Class I work is the negative pressure glove box. This isolation device, is a rigid containment, unlike the glove bag, which is made of flexible material. Because it can be constructed of strong, impermeable material, common glove bag failures due to holes, leaks and collapse, would theoretically be avoided.

Mark Mazzara of SDS International Builders submitted several documents describing a negative pressure glove box, which his firm was marketing. The accompanying brochures described it as follows:

* * *system allows for the removal of ACM on pipes by creating a closed work area around the pipe section to be worked on. * * * consists of work box, together with a pressure barrier generated by the systems inherent Negative Pressure filtration system. The Work Box is a maneuverable element of sturdy metal construction that is positioned around the unit of pipe to be worked on * * * [it] is fitted with standard gloved apertures allowing for access into the closed system for the asbestos workers. At the base of the Work Box is an aperture feeding into a bagging outlet into which the liberated ACM is passed. This allows for easy bagging of the ACM and its subsequent disposal. * * * [it] is attached to a * * * negative

pressure generator, that allows the creation of the pressure barrier that allows the creation of the closed system, preventing the escape of hazards materials into surrounding area (Ex. 7–98).

The submissions contained numerous sampling results indicating that low fiber levels were maintained during the use of this device. Accompanying these was a letter from the State of New Jersey in which the Division of Building and Construction (Frank J. Kuzniacki) stated that he felt that the device "provided a safe and cost effective alternative to standard glove bag removal."

The last method specifically listed for Class I use is designated the "water spray" process. In submissions to the docket and in testimony at the public hearing, representatives of Hydrous Dust Control Systems, Inc. described an alternate method of control for use in work on asbestos covered pipes which they called the Portam Process. This process relies on water spray to provide a barrier between the worker and the ACM. In written materials it was described as follows:

> Engineered designed sprays are configured so as to create a liquid barrier on every plane. The spray is so designed as to throw a heavy droplet of liquid giving it both velocity and direction. On at least one of these planes * * * the heavy water droplets are forced into collision creating a very fine aerosol which is contained within liquid barriers. A water containment device is placed around the spray rails with an open access and double drain facility. A vacuum hose is connected to the drain facility creating a slight pressure differential (negative pressure), in the contained area. When water covers the drain area the pressure differential is maximized in the drain hose pulling the waste and water very rapidly to the remote interceptor. This movement creates a shock pulse which is quite visual and is reflected at the workhead. The sudden movement of air within the work zone helps to stimulated the fine aerosol droplets creating eddy current. These eddy currents promote a 360° precipitation around the pipe (Ex. 1–171).

Data were presented showing that use of this system achieved consistently low exposure levels. However, the complexity of the system, and its uniqueness require, as the manufacturer recommends, additional training for effective use. Therefore OSHA is allowing this system to be used only by workers who are trained in a supplemental 40 hour training course in the specific use of this system, including at least 8 hours of which must be hands-on training. Although BCTD stated that this system possessed a high potential for exposure because it is not a sealed system, (Ex. 143, at 103), OSHA believes that the technology of the water spray system is sufficiently proven by the data submitted.

Other specific systems which do not easily fit the descriptions of the above systems were discussed during the rulemaking. Some, such as the "Lyons Trough" appear promising, however, the data submitted are too limited for OSHA to determine effectiveness in the rulemaking. Several TEM and PCM measurements were made during a "controlled demonstration" which lasted 31 minutes and during "field evaluation" of 29 minutes. The personal sample from the former was below the limit of detection by PCM, and the personal sample from the latter measured 0.002 f/cc by PCM (Ex. 135).

Other methods appeared too limited in application to be "generically" approved by OSHA, and/or appeared highly dependent on worker behavior to avoid failure. Such a system, devised by Tenneco, is a modified glove bag/mini-enclosure to facilitate safe removal of small amounts of asbestos fireproofing above ceiling tiles (Ex. 65 A–P). In its post-hearing brief, the BCTD objected to the use of the Tenneco device for two reasons. First, because it was held as close as possible to the ceiling and did not fit against it, they felt there was potential for fiber escape; and second, they questioned how effective it would be if one of the workers holding it up got tired and dropped it. (Ex. 143, p. 103). OSHA agrees; the device may be used therefore only as an alternative control method pursuant to the requirements for certification in paragraph (g)(6).

Mini-Enclosures

Mini-enclosures, the other control method allowed for Class I work is supported by a submission by BCTD which described a portable isolation enclosure developed by J. Streiter of Southern Insulation Inc. (Ex. 119, #5). OSHA notes, however, that mini-enclosures are manufactured by other companies and this rule does not limit use of the device to any particular manufacturer. In an accompanying trade paper article the portable enclosure is described as: "a cubicle with an extendable shroud that fits on top. A HEPA filtration system drew air down from the ceiling. Inside the enclosure was a suited man; opposite was a trapped door with a bag attached * * * the worker remove[d] the tile, clean[ed] off the grid and deposit[ed] everything in the bag after opening the trap door. Suction would pull the door shut. Within the enclosure was a shower attachment * * *" The submission also contained air sampling data obtained during use of this apparatus while removing ceiling tiles from a Virginia building. The results indicated that fiber levels averaged less than 0.01 f/cc. However, as pointed out by BCTD in its post-hearing brief there was failure to achieve clearance (0.01 f/cc under AHERA) in this building following use of the device which "necessitated evacuation of the work areas on several occasions." As explained elsewhere in this document, OSHA is not requiring AHERA clearance levels to be achieved for Class I work. If such requirements must be met, the employer should employ all applicable controls which in some cases may exceed those in these standards.

Class II Work

Class II asbestos work is defined as activities involving the removal of ACM or PACM which is not TSI or surfacing ACM. According to the definition, this includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, gaskets, joint compounds, roofing felts, roofing and siding shingles, and construction mastics.

OSHA has found that the exposure potential from Class II work is generally lower than for Class I work, when removal is conducted under substantially similar conditions. Consequently, if the employer shows, that in any particular job, that well-trained and experienced workers, with an established "track record" of keeping exposures low will perform that removal, the required controls are less stringent than those required for Class I removals.

Removal of materials which are not TSI or surfacing ACM may be handled by complying with work practice and engineering control requirements for Class II in paragraph (g)(7), and the generic requirements for all asbestos work in (g)(1) of the standard. Additionally, methods allowed for Class I removals may be used for Class II work, unless the system cannot be adapted for Class II work, such as in the case of the water spray process system. Glove bags/boxes can be installed around some materials covered by the Class II designation, such as gaskets and ceiling tiles. It is OSHA's intent to allow Class I methods to be used for removing Class II materials when no modification in the apparatus is required, without special notice to OSHA.

As Class II work, removal of asbestos-containing material such as floor tiles and roofing will not be subject to quantity cut-offs for using certain control methods. This is similar to the proposal, which would have allowed these materials to be removed using mandated work practices, and exempted compliant jobs from negative pressure

enclosure requirements. Under the final standard, other materials classified as "miscellaneous" by EPA such as transite panel and valves/gaskets may be removed without quantity limitation so long as Class II work practices are followed. Additionally, the standard allows all other materials (except TSI and surfacing ACM) to be removed using the generic work practices in paragraph (g)(1) which require wet methods, HEPA vacuuming and prompt waste disposal, and pursuant to additional controls in (g)(2) if the PEL may be exceeded.

Paragraphs (g)(7)(i) and (ii) establish "setting-up" requirements which apply to all removals of all Class II materials. These include the requirement that a competent person supervise the work and that where a negative exposure assessment cannot be produced or changed conditions during the job indicate elevated fiber levels, critical barriers or other isolation methods must be used or where the ACM is not removed in a substantially intact.

OSHA is also listing specific work practices for some kinds of Class II work which are common, such as removing flooring material or roofing material, as proposed. The generic list of work practices for all operations under this standard in paragraph (g)(1), covers most specific practices set out for each kind of removal. However, since both OSHA and participants believe that stating how each kind of material must be removed in specific terms will enhance compliance, paragraph (g)(7)(2) restates the relevant generic requirements in terms specific to each activity. For example, using wet methods for all asbestos work, unless the employer can show wet methods are infeasible, is now required, in the generic requirements, for all asbestos work [see (g)(1)]. However, wet methods encompass a range of work practices. For example, when removing material which is bound in a matrix, misting may be appropriate. Removing ACM or PACM which is not so bound, or where deterioration of the ACM has occurred, would require more aggressive wetting.

Thus, in the paragraph applying to flooring removal, the employer must mist the "snip point" used for cutting sheet flooring. For roofing removal, the blades of all powered tools must be continually misted during use. OSHA believes these more specific directions will help insure that work is done protectively.

OSHA proposed to require use of wet methods to remove sheet floor covering. RFCI guidelines state that floor tile is to be removed by prying up an edge but no mention of the use of water on the floor tile is made. The revised standards require the use of wet methods wherever feasible including operations involving the removal of all floor covering materials known or presumed to contain asbestos. P. Quirk, an asbestos consultant, recommended that "Floor tile and sheet removal must utilize wet methods for all work" (Ex. 3–34). A representative of the Resilient Floor and Decorative Covering Union expressed a similar view that "the floor should be kept adequately wet during the entire operation" (Ex. 7–37). Based on this support, OSHA has concluded that most flooring removals must be performed using wet methods when feasible and has included this requirement in the final with one exception. The exception allows floor tiles to be removed intact using heat.

Specific Work Practices for Specific Class II Operations

As discussed above, certain precautions are always required for all work under these construction and shipyard standards in paragraph (g)(1). These are HEPA equipped vacuums, wet methods, and prompt disposal of waste and debris. Additional provisions apply to the removal of all Class II material [Paragraph (g)(7)]. These are required critical barriers in designated indoor activities and dropcloths in all.

OSHA also includes more detailed work practices for specific Class II activities, such as the removal of roofing materials and resilient flooring material. Most of these requirements are more specific applications of general industrial principles for handling dust-generating materials, asbestos in particular. OSHA and many participants believe that employers are helped by specific work practice requirements so long as they do not restrict common sense accommodations to unique workplace conditions. The following discussion show the reasons for and support of OSHA's decisions for specific work practices for removal or disturbing ACM or PACM.

Flooring Operations

Flooring operations are separately discussed because of the amount of interest in these activities manifest during the rulemaking, and the prevalence of asbestos-containing flooring materials in buildings. Because of the prevalence of asbestos-containing flooring, the frequency which it is maintained and removed, and the possibility of exposure if improperly done, specific requirements for flooring are needed to reduce significant risk to the extent feasible.

Removal of asbestos containing flooring materials is a Class II asbestos job. As such, it must be performed using the operation specific controls set out in paragraph (g)(ii)(a), or when called for by an "exposure assessment using "alternative" controls. Additional controls must be used if the employer does not produce a "negative exposure assessment" prior to the beginning of the job, if during the job, there is reasonable belief that a permissible exposure level will be exceeded, or if methods are used which are expected to result in flooring material breaking or otherwise removed in a non-intact state. The required controls in large part mirror those of the proposal which were based on work practice recommended by the Resilient Flooring Covering Institute (RFCI). Additional "non-aggressive" practices are allowed, in response to supporting data and to commenters such as Michael Murphy of Monsanto who asked that OSHA "* * * allow the use of other practices which achieve comparable results" (Ex. 7–125).

OSHA believes that these provisions are necessary and appropriate to reduce risk to workers who perform this type of activity. The relative level of risk of removing asbestos-containing flooring was considered in the rulemaking. OSHA has not classified asbestos containing flooring as "high risk." The degree of risk from removing these materials depends on the kind of removal activity performed, and on the condition of the material. Data relating to flooring removal show overall lower levels than TSI and surfacing ACM (see e.g., Ex. 7–100; 7–132). Thus, EPA recently included resilient floor covering, in its lowest risk category (Category I non-friable ACM). However EPA concluded that "if these materials are in poor condition and are friable or they are subjected to sanding, grinding, cutting or abrading, they are to be treated as friable asbestos materials (55 FR at 48409). The OSHA record supports these findings.

Opinions of some asbestos abatement experts familiar with a range of asbestos removal projects agreed with the basis for EPA's and OSHA's classification scheme. Marshall Marcus stated that flooring removals, when well conducted are likely to involve lower exposures than removals of other types of interior asbestos containing materials; whereas Mary Finn emphasized that removing of flooring tile, because it cannot be saturated easily, may, when aggressively removed, result in significant exposures (see testimony of Marshall Marcus, Tr. 3794 and Mary Finn Tr. 3765).

OSHA's approach of requiring those removal methods which are unlikely to elevate exposures was challenged by participants who contended that methods for removing flooring cannot be determined at the beginning of the project. This might occur when employees discover during the project that flooring is resistant to removal. This may be difficult to predict in advance, as pointed out by BCTD (Ex. 143 at 155, citing testimony of asbestos contractor and consultant Marshall Marcus, Tr. 3794 and others). OSHA acknowledges that such difficulties may occur. However, as pointed out by Mary Finn, many of the variables contributing to exposures are available for consideration at the inception of the project; "* * * the predictability of how aggressive one must remove floor tile varies from job to job depending on the age of the particular materials, depending on the wear that it's undergone and depending on the techniques that the particular contractor and his workers might use" (Tr. 3744).

Also, OSHA notes that much of the project data submitted show consistency in practices over the entire project. In cases where more aggressive methods are resorted to mid-job, OSHA requires a "mid-course correction:" a re-evaluation of the exposure potential by the competent person, and the installation of additional controls if the projection is that the exposures will exceed the PEL.

Most "aggressive" techniques, such as "shot-blasting" may be used only after an evaluation showed that less aggressive methods are not feasible. Even if the evaluation of the "aggressive" method shows exposures will be below the PEL, the employees must still install critical barriers or otherwise isolate the removal operation [paragraph (g)(4)(i)(B)(2)], and employees must wear respirators. This is required regardless of when such "aggressive" methods were used, at the inception, or mid-way into a removal job.

Specific "non-aggressive" control methods are allowed and preferred for removing flooring materials (tile, sheet, and mastics) which contain asbestos and those materials for which the employer/building owner has not verified the absence of asbestos. The controls are "non-aggressive" work practices, and include the practices which under OSHA's proposal would have allowed an exemption from the requirement to erect a negative pressure enclosure for flooring material removal (see 55 FR at 29719).

OSHA did not propose to require employers to assume that vinyl or asphalt tile or resilient flooring was asbestos containing, although the RFCI recommended that such an assumption be made. OSHA asked for comments on this issue.

Several industrial hygienists agreed that the recommendation should be followed. For example, David Kirby, industrial hygienist, Oak Ridge National Laboratory, testified that an ongoing survey of ORNL facilities showed that "90 percent of our floor tile either contained asbestos or the mastic material that's used to attach them to the floors contained asbestos." Mr. Kirby recommended that it's "prudent to * * * assume that all floor tile materials contain asbestos, unless you can prove the contrary * * *" (Tr. 124–125). According to Mr. Kirby, negating the presence of asbestos content in flooring material entails a complex and expensive process; "taking those materials, having them ashed, using high temperature ashing techniques, and then the residue could be analyzed by transmission electron microscopy." Other evidence in the record indicated the prevalence of asbestos containing flooring material. An EPA 1988 survey, cited in the HEI report, reported that 42% of public and commercial buildings within the U.S. contain asbestos containing floor tile (Ex. 1–344).

A review of the comments and evidence demonstrates that there is a high degree of prevalence of asbestos-containing flooring and that there are diagnostic difficulties in identifying asbestos fibers in flooring material. Consequently, OSHA is changing its approach and the final standard provides that the employers shall assume in removing flooring that it contains asbestos and take the specific precautions unless the employer demonstrates that the flooring materials are not asbestos-containing. Such a showing must be based on analysis which is likely to reveal the asbestos content of the flooring material, the backing and the mastic. No one protocol for analysis is specified, but the standard requires that a certified industrial hygienist (CIH) or project designer certify the analytical results.

OSHA believes that the final standard's provisions relating to flooring removal are more comprehensive and protective than the proposal's. There, an exemption for flooring removals from the NPE requirement was conditioned merely on compliance with certain work practices recommended by the Resilient Floor Covering Institute (RFCI). These practices included a prohibition of sanding of floor or backing, use of a HEPA vacuum cleaner before and after removal, prohibition of dry sweeping, application of new material over old tiles without removal if possible, wet removal of residual felt, and bagging and disposal of waste in 6 mil plastic containers. The new final provisions allow removal to be performed by these methods, but also allow various heating methods to be used, or any other means of loosening floor tiles, without breakage. Unlike the proposal, an employer cannot proceed without negative air or critical barriers, merely using non-aggressive work practices and wet methods, unless his pre-job evaluation shows that similar floor removals (in the same building or of the same materials and mastics) were successfully completed by work crews with adequate training and experience in working under these conditions.

OSHA noted in the proposal that data provided by RFCI showed that where jobs followed their recommended practices, mean exposures to workers were between 0.0045 and 0.03 f/cc for workers performing floor tile removal, removal of resilient sheet flooring, or removal of cutback adhesive. During the rulemaking, additional data were submitted showing exposure levels during flooring removals. David Kirby, OSHA witness from Oak Ridge National Laboratory (ORNL) said that he has used the RFCI work practices successfully, maintaining personal sampling fiber levels at an average of 0.0075 f/cc (range 0.001 to 0.029) (Tr. 99). When asked what additional precautions were taken at his facilities during these operations, he replied that "we do use regulated areas in the sense that we don't allow anyone in the area as we're doing the work, and we also require workers to wear respiratory protection as they're doing this activity, but yet we don't feel like there is * * * a need for negative pressure enclosures." (Tr. 124). BCTD, in its post-hearing brief argued that the RFCI methods specifically, and "non-aggressive" flooring removal methods generally, do not always result in exposure levels which are acceptable (Ex. 143). It cited various studies or project results submitted to the record. Some of these results were given in terms of structures per square centimeter, a convention of TEM. For example, Richard Kelly of Lawrence Livermore National Laboratory objected to allowing the use of RFCI methods to control asbestos exposure during removal of asbestos containing mastic (Ex. 11, #22). He reported that during removals in which only the mastic contained asbestos, he had measured (by TEM) fiber levels of 33 s/cc during dry power chipping of VAT and 0.9 s/

cc during wet hand removal in what he called a "real-world application of the RFCI procedures." He noted that the floor was not pre-vacuumed nor was a heat gun used as described in the recommended practices. Under its AHERA rule, EPA defines "structure" as a microscopic bundle, cluster, fiber or matrix which may contain asbestos. OSHA notes that such structures may be smaller and/or thinner than the asbestos fibers required to be counted under the OSHA reference method. A general summary of the results of these studies shows that most of the exposure levels were below the proposed PELs when measured using the OSHA reference method (e. g., Gobbell, 1991, exposure range, 0.01 to 0.035: AT &T, 1990, non-detected to 0.019).

Some other studies of floor removals entered into the record showed higher exposure levels of "structures" as detected by TEM, and defined by EPA. As noted above, counts of structures are not comparable to fiber counts, and OSHA believes that most "structure" counts result in significantly higher fiber counts than would be counted by PCM.

A related issue is whether flooring material should be analyzed by TEM, rather than by PCM. As pointed out by BCTD and other participants, floor tile tends to generate smaller fibers which often cannot be detected under PCM; and TEM detects these shorter asbestos fibers (and the thinner asbestos fibers, which PCM cannot distinguish [Ex. 143, p. 147 citing Tr. 3468; Tr 3751, Tr. 3279, Tr. 473–474]. In the 1986 rulemaking OSHA considered the issue of the relative toxicity of short asbestos fibers, which were not required to be counted under the OSHA definition of "fiber." Then, the Agency stated that "* * * animal studies * * * in particular the recent work by Dr. Davis, point to a clear relationship between fiber dimension and disease potential. The finding in these studies that thin fibers, (having an aspect ratio of at least 3:1) greater than 5 μm in length are associated with elevated incidence of cancer and lung fibrosis is also consistent with current knowledge regarding lung clearance mechanisms, i.e., that shorter fibers are easily phagocytized and removed from lung tissue" (51 FR at 22613). Dosages used in OSHA's risk assessment extrapolated from studies of human exposure, attempted to transform or reconstruct fiber counts to correlate with fiber counts using current conventions of counting fibers only longer than 5 μm, using PCM. Similar to the conclusions reached by OSHA in the preamble to its 1986 asbestos rule, the HEI report of 1991 found that "experimental results described in this review indicate that short fiber preparations have a lower toxicity than long fiber preparations, but do not exclude their contribution to the lesions caused by the smaller number of long fibers in the tail of the fiber length distribution * * * individual fibers shorter than approximately 5 μm appear to possess much less toxicity than those longer than 5 μm" (Ex. 1–344, p. 6–76).

The HEI Report also noted that the exposure-response relationship reported in the literature which served as the basis for estimation of risk had exposure expressed in terms of fibers greater than 5 μm in length (Ex. 1–344). These aspects of OSHA's risk assessment, and counting protocols were not challenged in the litigation following the 1986 rules, therefore were not remanded to OSHA for reconsideration in the Court of Appeal's 1988 decision. The only study submitted in its entirety, (see Freed et al, Ex. 143 at Att. B), is of limited relevance; it is a case study, which was undertaken to show that asbestos fiber may produce DIP (desquamative interstitial pneumonia) as well as asbestosis. The authors note that "although over 90% of the 820 million fibers of wet lung tissue were 3 μm or less in length, sufficient numbers of fibers greater than 5 μm in length were present, which could also account for the tissue response" (Ex. 143, Att B at 332). Resolution of whether short or long fibers are counted is not necessary for the purposes of this revised standard, because OSHA finds that work practices and controls are needed when working on floors regardless of the measurement method used. OSHA does not change its conclusion and retains the provisions that airborne asbestos measurements taken during flooring operations shall use the same methodology as in the 1986 standard.

The Agency's analysis of data submitted showing exposure levels during flooring removal, shows a general correlation between lower levels and "non-aggressive" methods, and higher levels and "aggressive methods." For example, Mary Finn of Chart Services, an asbestos consulting company, testified that "if breakage is minimized, obviously exposures are going to go down" (Tr. 3765). Ms. Finn submitted area sampling data from flooring removal operations which had a mean of 0.056 f/cc as an 8-hour time-weighted average (Ex. 9–18). She also presented data on area TEM counts taken during four operations involving drilling through VAT—the mean for the four samples was 0.3 structures/cc (2 samples were below the limit of detection and one value was 1.01 f/cc), while all four samples were below the limit of detection when measured by PCM. BCTD cited various studies showing high fiber levels during flooring removal (Ex. 143 at 151–153). One, the Cook data, showed some high short term levels on one job, it was unclear what work practices were used, other jobs done by the same firm showed exposure values less than the PELs (see Ex. 35 and 119S). The Rosby data showed short term data which were well within the PEL excursion limit (Ex. 119 U). Other data pointed to by BCTD as indicating the unreliability of exposure reductions using non-aggressive methods, merely shows that EPA clearance levels were not achieved (Ex. 7–132), that exceedances were possible (Ex. 7–137 [it is noted that an exposure of .11 f/cc is considered in compliance with OSHA's PEL, and that TEM fiber counts were elevated (Ex. 119T)].

In addition to the Environ data contracted for and submitted by RFCI and Armstrong, which was interpreted differently by the submitter and by BCTD, these and other interested parties submitted additional data showing exposure levels during various kinds of asbestos-containing flooring removal. Low exposure levels were obtained in a New York State Department of Health Study, for floor tile removal using automated infrared heating, (followed by hand scraping)(see Ex. 7–100). As noted above, OSHA is allowing removal to be performed using heat, so long as tiles are not broken during the removal process. Under contract with EPA, PEI Associates performed a study which was described in a report entitled "Evaluation of Tile and Mastic Removal at Fort Sill" (Ex. 1–330). TEM was used to measure fiber levels resulting from use of several different methods to remove tile and/or mastic. They found that "airborne asbestos levels averaged 0.135 structures per cubic centimeter (s/cc) during dry tile removal, 0.066 s/cc during wet tile removal, 0.247 s/cc during removal of mastic using citric acid and towels and 0.326 s/cc during sand machine mastic removals. No PCM measurements were presented, and the proportion of the TEM-measured fibers exceeding 5 μm in length was not reported.

The question of whether a negative pressure enclosure should be required for floor tile removal, was considered during the rulemaking. Some participants, including asbestos abatement consultant, Marshall Marcus recommended negative pressure enclosures as a matter of course for asbestos containing flooring removal (See e.g., Tr. 3796 and Ex. 7–37, 7–92).

OSHA notes that its final rule now requires bystander protection, when excessive exposure levels are measured or expected. The questionable benefits to flooring removal employees of working within a enclosure are discussed in the general discussion on NPEs in this preamble. OSHA also notes that some exposure data submitted concerning flooring removal exposure levels, contained relatively high exposures for work within enclosures (see e.g., Ex. 7–134A) and that removing flooring using dry ice in a negative pressure enclosure can result in toxic buildups within the enclosure (see Tr. 202). Therefore OSHA is not generally requiring flooring removal to be done within NPEs. However, where flooring material is removed using "aggressive methods," higher fiber levels have been reported, at least as measured by TEM (see Ex 11, #22 and 9–18). The Agency concludes that the use of aggressive floor removal techniques in which the material is not removed intact, such as mechanical chipping of floor tile and shot-blast removal of mastic, are likely to result in the release of larger amounts of fibers and must be performed within negative-pressure enclosures or the equivalent. EPA has concluded similarly:

> Removal of VAT (or other known or assumed ACM flooring or its adhesive) which involves sanding, grinding, mechanical chipping, drilling, cutting or abrading the material has a high probability of rendering the material friable and capable of releasing asbestos fibers. Therefore, removal projects which employ any of these techniques (other than small-scale-short-duration) must be conducted as response actions, including use of a project designer, accredited persons, and air clearance (55 FR 48409).

In response to concerns that the RFCI work practices will not be followed, it should be pointed out that the alternate to their use is full enclosure of the operation which is likely to be considered more burdensome than the work practices.

Transite Removal

Removal of transite panels is considered a Class II activity in this revised standard. As such, they are required to be removed using certain practices and controls. These are: the intact removal of transite panels; the use of wet methods followed by wrapping of the panels in plastic; and the lowering of panels to the ground without breakage. These provisions are in essence the same one proposed by OSHA in 1990 when allowing an exemption from the NPE requirements. The 1990 proposal presented the comments of OSHA field personnel which suggested that removal of transite panels, without regard to quantity, should be exempt from the negative-pressure enclosure requirement as long as the transite is removed without cutting or otherwise abrading the material (Ex. 1–59). This suggestion was supported by numerous participants (Ex. 7–6, 7–9, 7–23, 7–42, 7–43, 7–47, 7–52, 7–62, 7–63, 7–74, 7–79, 7–86, 7–95, 7–99, 7–103, 7–106, 7–108, 7–111, 7–112, 7–125, 7–128, 7–134, 7–144, 7–146, 7–140).

Additional work practices such as wrapping panels and lowering them intact, were suggested in this proceeding and are incorporated in the revised standards [see comments of Robert Welch of Columbia Gas System who recommended wrapping intact transite panels in sheeting and lowering them intact to the ground avoiding breakage (Ex. 7–23); and, comments of Edward Karpetian of the Los Angeles Department of Power and Water, who recommended that in addition, the material be HEPA vacuumed and wrapped (Ex. 7–42)]. As noted in prior discussion of the general provisions covering construction activities, negative pressure enclosures are not required for Class II activities, unless they are performed along with a Class I activity for which an NPE is required.

The rulemaking record contains strong evidence showing low exposures resulting from transite panel removal when appropriate work practices are followed. The submission of the American Paper Institute and the National Forest Products Association contained sampling data taken during the removal of transite panels from paper machine hoods (Ex. 7–74). Wet methods were used and the area was regulated. Personal and area samples were well below 0.1 f/cc, with the 23 personal samples having an average of 0.012 f/cc (not time-weighted). Rose Simpson of Lubrizol stated that "area monitoring samples taken during transite removal operations at our facilities indicate exposure levels well below the current 0.2 f/cc and the proposed 0.1 f/cc limits" (Ex. 7–86). OSHA witness David Kirby of Oak Ridge National Laboratory stated in his comments that personal air monitoring during transite panel removal resulted in average fiber level of 0.008 f/cc (8 hr. TWA) (Ex. 7–111). And in a post-hearing submission (Ex. 105), he presented the fiber levels (measured by PCM) generated during non-enclosed transite removal performed wet at ORNL, which ranged from <0.031 to <0.082 f/cc (mean=0.058 f/cc) (see also Ex. 140, where the Dow Chemical Company claimed transite removal real time levels did not exceed 0.07 f/c).

As described above, most data show that if performed intact, transite removal will result in exposures well below the PELs. Some evidence, however, was presented showing exceedances. Paul Heffernan of Kaselaan & D'Angelo Associates, Inc. stated:

> * * * removal of transite panels which are not cut or broken should not be generically allowed. Many transite panels used in interior wall construction consist of very rough inner surfaces from which asbestos fiber is readily released into the air. Kaselaan & D'Angelo Associates has monitored the removal of 18" by 36" transite panels which were held in place with screws. The transite panels were removed intact by removing the screws and lifting the relatively small panels to the floor where they were placed in boxes. The exposed surface of each panel was first wet with amended water before removing the screws. The job was performed within negative pressure containment. Airborne fiber levels exceeding 1.0 f/cc were measured. Transite panel removal has potential for fiber release even when the panels are not broken (Ex. 7–36).

As noted above in the flooring material discussion, OSHA is requiring job by job evaluation of each Class II job, including transite panel removal projects, by a competent person, as part of the requirements to perform an initial exposure assessment. As detailed above, the data submitted to the record show that transite panel removal without cutting usually results in very low exposure levels. Building and facility records of past removals of similar material will alert on-site competent persons to the exposure potential of the panels in their facilities. For rare cases, when the evaluation of material, condition, crew and past exposure data do not support a "negative exposure assessment," (i.e., that excessive exposures may be expected), additional precautions are required by the standard, including critical barriers, and respirator use.

OSHA believes that these provisions will protect employees against significant exposures, are feasible, and are supported by the record. In particular OSHA finds that quantity limitations on transite panel removal would not tend to reduce risk, and in some cases may increase fiber levels. For example, Richard Olson of Dow Co. pointed out that if transite panel removal were to be exempted from the negative pressure enclosure requirement and the cutoff remained at 9 square feet as proposed, it would be necessary to cut nearly every piece of material removed or always use a negative-pressure enclosure (Ex. 7–103).

Cementitious Asbestos-Containing Siding (CACS)

The removal of cementitious asbestos-containing siding is a Class II activity. OSHA is requiring the same work practices for shingle removal as for transite panel removal. OSHA did not propose specific work practices for removal of CACS, either to exempt this activity from the negative pressure enclosure requirement or to qualify as a SSSD activity. However, many participants representing a wide spectrum of interests, including states, federal agencies, and asbestos industry organizations, recommended that OSHA exempt CACS removal from the requirement to establish negative-pressure enclosures; (See e.g. asbestos coordinator for Florida (Ex. 7–6); Navy Office of Chief of Operations (Ex. 7–52); Asbestos Information Association/North America (Ex. 7–120); New York City Department of Environmental Protection (Ex. 126); and, The Army Corps of Engineers who also submitted the data from a study of fiber levels generated during CACS removals Ex. 1–307).

In the Army Corps of Engineers' study cited above, three mechanical CACS asbestos removal methods and the manual method were evaluated by monitoring during removal of the siding. The three methods were: 1) super wet: the siding was thoroughly wetted with water on the outfacing and back side; 2) mist: a measured amount of water was applied to the outfacing side of the siding only; and, 3) encapsulation: an EPA-approved commercially available encapsulant was applied at or above the recommended application rate. These removals took place inside enclosures and the hand method was also evaluated. Samples were measured using TEM and results of area samples indicated all were less than 0.005 or below the limit of detection. Two personal samples taken "while removing cement-asbestos siding shingles from Building 523" yielded 8 hour time-weighted averages of 0.008 and 0.012 f/cc.

Other data show low exposures during CACS removal. One where approximately 110,000 square feet, in total of CACS were moved from 43 college campus dormitory buildings prior to demolition. The average bulk analysis of the CACS was 17%. No outdoor area samples were higher than 0.01 f/cc by PCM for the duration of the project. The 80 personal samples collected during the project had an arithmetic average of 0.049 f/cc with a standard deviation of 0.041. The geometric mean was 0.04 f/cc with not TEM data available (Ex. 7–132A). The study authors concluded that "CACS removal, even though outside where dilution is assumed significant, should be done carefully, using as a minimum the abatement techniques described in this paper." These included wetting, dropcloths, and a 20-foot wide regulated area. OSHA agrees and believes that the methods required by the standard will reduce risk significantly for exposed workers.

Results of this study and others show that CACS removal can be performed using work practices which minimize exposure to workers and that containment in NPEs is neither necessary or appropriate in most cases to protect the workers performing the removals or working nearby. However, it is clear that Class II work practices are necessary to keep exposures low.

OSHA has coupled CACS removal with transite panel removal in the regulatory provisions establishing mandatory work practices for the removal of these materials.

Roofing Operations

The final construction standard classifies removal of roofing material which contains asbestos as a Class II operation. As such, specific exposure assessment and work practices must be performed. The record shows that these work practices can be feasibly implemented and are necessary to effectively reduce airborne asbestos levels from roofing removal projects. They consist of continual misting of cutting machines during use, keeping roofing materials intact during removal, using wet methods, immediately lowering unwrapped or unbagged roofing material to a covered receptacle using a dust-tight chute, or immediately wrapping roofing material in plastic sheeting, and lowering it to ground by the end of the work shift.

In addition, unless the employer can demonstrate that it is not feasible, the roof level heating and ventilation air intake and discharge sources must be isolated, HEPA filtered, or extended beyond the regulated area, or mechanical systems must be shut down and vents sealed with 6 mil plastic. OSHA has taken into account concerns that isolating air intakes may cause heat build-up in the building (Ex. 7–7). As for all Class II work, respirators must be worn if material cannot be removed in an intact state, or if wet methods are not used. In addition, regulated areas must be established pursuant to the provisions of paragraph (e).

These provisions are similar to the conditions proposed by OSHA which would have allowed an exemption from the proposed negative pressure enclosure requirement providing implementation of specific control methods which would have applied to all non-exempt removal jobs. In the proposal, the Agency stated that it did not believe that requiring use of negative pressure enclosures on roofs would result in more than a *de minimis* benefit to workers removing roofing or to other employees in their vicinity. That the safety hazards which might be imposed by their use on roofs would outweigh the benefits (55 FR at 29719). The Agency proposed that employers engaged in roofing operations take additional steps to reduce employee exposure to asbestos. These steps included use of dust-tight chutes to lower debris from the roof to the ground, or immediate bagging and lowering of debris rather than dumping it from a height. Wetting would also be required where feasible to reduce contamination. The Agency felt that these measures had been shown to be effective in reducing employee and bystander exposures during roofing operations.

There was general support for the exemption of roofing operations from the NPE requirement (Ex. 7–1, 7–12, 7927, 7–36, 7–39, 7–43, 7–52, 7–95). BCTD acknowledged that negative-pressure enclosures are infeasible for most roofing operations. OSHA also believes that categorizing roofing removals as Class II work is well supported by the record. Some data show exceedances of the new PEL in roofing operations (see Ex. 9–34 QQ, cited by BCTD, Ex. 143 at 135). Other data show roofing removals, where proper work practices are followed, generate low exposure levels, e.g., data submitted by NCRA, collected by SRI shows many exposures were below the revised PEL, most jobs used wet methods (Ex. 9–31A).

A health survey submitted by the BCTD showed asbestos related diseases and deaths among roofers in the period from 1976–1989 (Ex. 119 QQ). That study is evidence that proper protective practices are necessary to protect workers. However, diseases resulted from past exposures both removing and installing asbestos-containing roofing without protective requirements and do not necessarily predict worker health from lower exposures resulting primarily from removal work performed more protectively.

In addition participants supported required work practices (see Ex. 7–120, 7–132, 7–36). BCTD preferred adoption by OSHA of the recommendations made by the labor representatives of ACCSH which are more rigorous than the work practices proposed by OSHA. The

additional practices would include: establishing the entire roof as a regulated area; cutting or removing ACM using hand methods whenever possible; equipping all powered tools with a HEPA vacuum system or a misting device; HEPA vacuuming all loose dust left by the sawing operation; and, isolating all roof-level air intake and discharge sources, or shutting down all mechanical systems and sealing off all outside vents using two layers of 6 mil polyethylene (Ex. 34). As noted above, OSHA has adopted most of these additional work practices in the final regulations. OSHA is not requiring the entire roof to be designated as a regulated area: the portion to be removed may be a small part of the entire roof. The regulated area should encompass that portion of the roof where dust and debris from the removal is likely to accumulate.

One issue concerning required controls is whether OSHA should prohibit power cutting on roofing materials containing asbestos. Information in the record is inconclusive on whether power cutting usually results in higher exposure levels than hand cutting. A representative of the National Roofing Contractors Association (NRCA) testified that "we're finding extremely low readings (on the power cutter); * * * it appears to us that the cutting of the material seals the edges because of the heat of the blade of the cutter, mixing with the asphalt" (Tr. 2427). Other data were submitted to show that power cutting elevates asbestos fiber levels compared to hand cutting; however OSHA believes that some of these conclusions may overstate the results of limited experimentation. For example, one study was presented as suggesting that power cutting elevated fiber levels over hand cutting (Ex 1–357). OSHA regards this study as not definitive. The differences in fiber levels in the breathing zones of workers were only marginally statistically significant, and there was another variable in the study's protocol which may have effected the outcome. OSHA recognizes the bound nature of the asbestos in most roofing materials, however, it also understands the physical principles involved in cutting of these materials and that such actions release fibers.

Because of this mixed record, OSHA concludes that no prohibition of power cutting is called for as long as the other specified precautions including misting are carefully followed. The standard allows power cutting, but also requires that sections of roofing material shall be cut into the largest pieces which can be feasibly handled for disposal pursuant to the standard. Requiring misting of power tools in all situations except where a competent person determines that misting may decrease safety is expected to help reduce exposure levels from power cutting.

The general requirement that all asbestos work be performed wet, unless the employer can demonstrate lack of feasibility applies to roofing operations. A discussion of this provision is found above in the discussion on paragraph (g)(1)(i)(B). As noted there, "flooding" is not required; "misting" of cut areas is sufficient to control dust.

OSHA believes that these precautions are necessary to protect employees who remove roofing materials against elevated exposures in normal circumstances. The record shows, however, that elevated exposures may occur where damaged or friable roofing material is removed. [See SRI report, recommending the use of respirators where roofing material is "uncharacterized and aged" (Ex. 9–31A at 20)]. Under such circumstances, the competent person's determination must be that the normal precautions are not sufficient. Steven Phillips, counsel to the NCRA agreed: "(w)hen you're working with uncharacterized and aged roofing materials, that is * * * where you have no idea what the exposures may be because you have no historical data; you haven't worked with that particular material; * * * (there are) the normal OSHA requirements of doing initial job site monitoring and having respirators until you have good, reliable, job site monitoring" (Tr. 2463). In such atypical circumstances, additional precautions, including respirator use and more extensive wetting, will be necessary. NRCA's objection to the routine use of respirators on roofing jobs, as recommended by BCTD, was based on its view that respirator use on roofs often compromises worker safety, because respirators reduce "downward visibility" of the wearer (Tr. 2463). OSHA agrees that in some roofing conditions, limitations from wearing respirators might occur. When respirator use is necessary because of the condition of the roofing material, but respirators cannot be safely worn because of great heat, cold, or high winds, etc., such roofing jobs shall not be performed until they can be done safely. The Agency has concluded that "routine" respirator use is not required, because as discussed above the required work practices will keep exposures low in normal circumstances; but where historic data, experience of the crew, or the condition of the roof indicate the possibility of higher exposures, then respirator use is required.

Various studies which were submitted support OSHA's classification of roofing removal as a Class II activity. They show that most measured exposures are lower than many studies showing removal of Class I materials; but still may be significant. In most cases levels below the new PELs can be routinely expected with minimum controls.

SRI evaluated air monitoring reports from 79 roofing removal operations, 560 personal and 353 area samples (Ex. 9–31). All samples, except 24 were well below the new PEL of 0.1 f/cc. Fourteen samples were collected for 30 minutes or less (and were below the excursion limit). When the remaining sample measurements were calculated as 8 hour time-weighted averages, they also did not exceed the PEL. The remaining samples did not exceed 0.1 f/cc. The contractors concluded, "there appears to be no pressing need for air monitoring at the start of each job, negative pressure enclosures, or wetting. However the use of half-mask respirators is recommended until the source of the fibers in the few samples where concentrations were above 0.1 f/cc can be defined." They added that "exposure to asbestos should be minimized until more (or better) information is available; the use of respirators seems a prudent compromise when working with uncharacterized and aged roofing materials."

The submission of Preston Quirk of Gobbell Hays Partners, Inc. included a study entitled "Airborne Levels During Non-Friable Asbestos-Containing Material (ACM) Removal" which was presented at the 1990 meeting of the National Asbestos Council (Ex. 7–133a). One section of this study presented the sampling measurements taken during removal of asbestos-containing roofing felt and flashing using a wet prying and peeling technique with no enclosure. Five area samples averaged 0.007 f/cc by PCM and 0.008 s/cm3 by TEM. Five personal samples averaged 0.024 f/cc by PCM and 0.304 f/cc by TEM. It was reported that the personal TEM samples had 0.124 s/cm3 of structure greater than or equal to 5 μm.

BCTD submitted a study by D. Hogue and K. Rhodes entitled "Evaluation of Asbestos Fiber Release from Built-up Roof Removal Projects" (Ex. 34, VV) in which roofing operations were monitored using both PCM and TEM methods of measurement. The authors stressed the "non-scientific" nature of the study and noted that they had measured only a limited number of samples. They described a project involving removal of a 15% asbestos roof from a hospital in which a several control methods were used. Area

samples were taken at "high," "medium," and "low" locations and most were measured using the PCM method. During mechanical removal, the arithmetic mean concentration was 0.16 f/cc (not time-weighted); and during manual removal the average was 0.1 f/cc (non-weighted). Personal samples were measured only by TEM and the 3 taken during manual removal averaged 0.11 f/cc (also not weighted). In another section of this report the authors describe a "Controlled removal of asbestos containing built-up roofing materials without containment with engineering and work practice controls and extensive sampling and analysis by transmission electron microscopy," however, the specific engineering and work practice controls employed are not described. Nonetheless, the resulting measurements, both PCM and TEM, are well below the PEL except one sample in which the TEM concentration was 0.1 s/cc.

NIOSH described an evaluation of airborne asbestos fibers during the tear-off of an old asbestos shingle roof from a residential building (HETA 84–321–1590, Ex. 44). Seventeen personal breathing-zone samples were collected for approximately two hours. For 5 tear-off workers the fiber concentrations ranged from 0.04 to 0.16 f/cc, arithmetic mean 0.09 f/cc; for two clean-up workers the fiber concentrations ranged from 0.13 to 0.16 f/cc, arithmetic mean 0.14 f/cc; and, for the 5 workers applying new shingles the concentration ranged from 0.03 to 0.08 f/cc with a mean of 0.05 f/cc. In this evaluation, NIOSH concluded that there was a hazard from exposure to airborne asbestos fibers during the tear-off of an asbestos shingle roof and recommended several practices to reduce worker exposure.

OSHA notes that in some cases, the author of the above studies recommend more rigorous controls than the final standards require. Largely, this was based on evaluations of roofing removal exposure potential based on small numbers of TEM measurements. As stated elsewhere in this document, OSHA has based its risk assessment, and relative exposure profiles on the results of many studies which relied on PCM values. OSHA considered TEM in the 1986 standard and concluded that it was quite expensive and not fully validated. More importantly, OSHA believes that the roofing studies submitted show the relatively low levels of asbestos fibers emitted during removal work when proper controls are used. The small number of exceedances which occurred reflect poor work practices and "uncharacterized and aged material."

The purpose of the regulated area in the asbestos standards is to prevent asbestos contamination of other parts of the workplace and to limit exposure to only those specially trained employees who need to work in the area. While OSHA does not want to shut down the entire building when asbestos work is done on the roof, asbestos entering the ventilation system during roofing work is clearly unacceptable. OSHA expects good judgment to be used by the competent person in striving to achieve the intent of the standard. OSHA requires that roof level heating and ventilation air intake sources must be isolated. The employer would also have the option to shut down the ventilation system and seal it with plastic. Only necessary work should be done on the roof while asbestos materials are being removed, and the locations of the work should be selected to minimize exposures, such as upwind of the asbestos work. OSHA agrees that the 20 foot barrier approach recommended by Mr. Collins (Ex. 7–52) has merit, but believes the exact determination should be made on site, and could vary depending upon working conditions.

OSHA concludes that removal of roofing material containing asbestos requires the use of controls to reduce significant risk. Simple procedures will reduce exposure levels substantially and, for the most part, will reduce levels below the PELs. OSHA believes that it is appropriate to require specification work practices for removal of asbestos-containing roofing material, regardless of measure exposure levels. As discussed above, these controls were recommended by rulemaking participants, although there was some disagreement regarding the need for some of the controls.

The final standard requires the use of wet methods and continuously misting cutting machines during use and loose dust left by the sawing operation is to be HEPA vacuumed immediately. Some commenters were concerned that water could create safety hazards, so the standard reflects that the competent person could determine that misting the cutting machine, or other wet methods, should not be used. If wet methods are not used the respiratory protection provision of this standard, paragraph (h) requires that respirators be used regardless of exposure level. This provision is based upon OSHA's finding that dry disturbance or removal of asbestos containing material has large potential to expose workers and is in accordance with that of EPA NESHAP. Other controls include removing the roofing material in an intact state to the extent feasible, immediately lower unbagged or unwrapped roofing material to the ground via dust-tight chute, crane or hoist, or wrapping the roofing material in plastic sheeting and lowering it to the ground, transferring materials immediately to a closed receptacle in a manner so as to preclude the dispersion of dust, and sealing off air intakes to the building prior to doing any roofing removal.

OSHA concludes from the studies that exposures can go over the PEL and create significant risk in circumstances when appropriate precautions are not take. Consequently, they support OSHA requirement for some specific work practices in all circumstances.

Methods of Compliance for Class III Asbestos Work

The newly revised construction and shipyard employment standards continue to regulate exposure to employees engaged in repairing and maintaining building components which contain previously installed asbestos containing material. In the 1986 construction standard, most of these jobs were called "small-scale, short-duration operations," but, as discussed above, OSHA was instructed by the Court of Appeals to clarify the cut-offs for that designation. Now, OSHA has determined that separate regulatory treatment of repair and maintenance operations will not be limited by arbitrary duration and amount-of-material-disturbed criteria. Instead, they are called "Class III operations," and are defined as "repair and maintenance operations which may involve intentional disturbance of ACM, including PACM" (see Green Book, Ex. 1–183). The major difference between the newly revised repair and maintenance definitions, is that the amount of material and/or the time the operation takes are no longer the criteria for inclusion in the class.

The revised and expanded definitions of the various terms in the Category III definition enhance its clarity. Since Category III includes maintenance, repair, some renovation and other operations which disturb ACM, and PACM, a definition of "disturb" is provided. Although "removal" activities are designated Category I or II, the incidental cutting away of small amounts of ACM or PACM to access mechanical or structural components for repair or maintenance, is considered Category III.

Examples of work which are considered Category III are contained in various studies submitted by participants to prove or disprove how

risky asbestos disturbing repair and maintenance work is. OSHA has evaluated the data from a number of sources to estimate the degree of exposure of workers to previously installed asbestos building material during various types of activities. Most studies showed lower levels of exposure than Category I and II work. For example, the Safe Building Alliance submitted a study by its consultant Price (Ex. 151). He compiled sampling data from numerous sources including OSHA compliance data, and obtained questionnaire information from building owners. The questionnaires solicited information on the frequency and duration of specific activities. These activities included, maintenance/repair of boilers, air handling units, heat exchangers, tanks; repair/replacement of pipe insulation including removal of small amounts of ACM; and, valve or gasket replacement, of activities above suspended ceilings such as connections and/or extensions for telecommunication/computer networks; adjustment/repair of HVAC systems; and, testing/cleaning/replacing smoker or heat detectors. The final activities which may result in ACM contact such as repairing/replacing lighting fixtures and replacing ceiling tiles. The data were used to calculate potential exposure hours (PEH) which is the product of the annual frequency of an activity and the duration of that activity in hours. For all activities in all buildings in the data set, Price calculated a PEH of 91 hours per year and a PEH per worker of 19 hours per year per worker. Eight-hour time weighted averages were also reported as presented in Table III.

TABLE III.—ASBESTOS FIBER LEVELS DURING MAINTENANCE ACTIVITIES

[Ex. 151]

Location of activity	8-hour TWA	Median PEH	PEH/ worker
Above ceilings	0.029	13	5
In utility spaces	0.031	13	2
Other	0.018	5	<1
OSHA data	0.027	—	.....
All activities	.....	74	19

Price concluded that small-scale, short duration activities take up a relatively small proportion of a typical worker's time in that in 80% of the buildings he studied, less than 22% of total time is spent on these activities in a year, and that "on a per worker basis, in 80 percent of the buildings the number of potential exposure hours total slightly less than 4 percent of a work year" (Ex. 151, Appendix A, p. 12).

OSHA notes that BCTD objected to various aspects of the Price study in its post-hearing brief (Ex. 143) and concluded that the study "demonstrated that in some buildings exposure hours can be very high * * *" (Ex. 143, p. 112). However, OSHA views the study as supporting its view that when properly controlled, most kinds of routine maintenance involving ACM results in low exposure levels.

A recent study by Kaselaan and d'Angelo Associates for Real Estate's Environmental Action League in 1991 was reviewed (Ex. 123). The contractors looked at historical data from 5 commercial buildings in which the activities sampled were reported as "small-scale, short duration." The operations were performed "almost exclusively" within mini-enclosures and most were performed by "trained and experienced asbestos abatement workers, who are more used to the larger full-scale asbestos abatement procedures" and not by building maintenance workers. The data are summarized in Table IV.

TABLE IV.—ASBESTOS FIBER LEVELS IN 5 BUILDINGS DURING "SMALL-SCALE" OPERATIONS

[Ex. 123]

Building designation	No. of samples	Average exposure	8 hr. TWA
One-C	76	0.073	0.025
1500	25	0.055	0.01
645	49	0.011	0.003
28	19	0.02	0.003
1114	7	0.023	0.007

(From Ex. 123, p. 1)

The authors also pointed out that because air monitoring and third party oversight during these activities, they probably represented situations in which proper precautions were taken. They concluded that "the data presented indicates the necessity of controlling asbestos exposure during the type of [small-scale, short duration] activities represented in this study. However if appropriately performed * * * exposures well below the current OSHA exposure limits can be maintained" (Ex. 123, p. 26).

TABLE V.—ASBESTOS FIBER LEVELS DURING VARIOUS MAINTENANCE ACTIVITIES

Type of work	Personal samples:		
	No. of samples	Mean	Range
Air handling unit preventive maintenance	57	0.0942	0.0087–0.6805
Miscellaneous repair	48	0.1272	0.0039–0.5496
Miscellaneous installation	20	0.1742	0.0049–0.8395
Clean-up of ACM debris	8	0.2030	0.0414–0.6246
Cable pulling	9	0.0544	0.0240–0.0985
Relamping	9	0.0469	0.0205–0.0929
Generator testing	18	0.0843	0.0075–0.2261
Fire alarm testing	4	0.1654	0.0836–0.2693

OSHA also notes that although exposures ranges above the PEL for some activities, mean levels were, in most case, much lower.

Dr. Morton Corn of Johns Hopkins University submitted summaries of monitoring results from samples taken during a variety of operation and maintenance activities from 5 buildings (Ex. 162–52). The 8-hour time-weighted averages of the personal samples for each building are presented in the Table VI.

TABLE VI.—ASBESTOS FIBER LEVELS DURING O&M OPERATIONS IN 5 BUILDINGS
[Ex 162–52]

Operation/building #	1	2	3	4	5
Ceiling removal/installation	0.015	0.003	0.008	0.03	.....
Electrical/plumbing work	0.06	0.003	0.006	0.008	0.04
HVAC work	0.02	.....	0.003	0.01	0.02
Miscellaneous work	0.008	0.004	0.01	0.09	.....
Remove/encapsulate	0.06	0.003	0.002	.....	.....
Run cable	0.02	0.002	0.08	0.01	0.03

8 Hour Time-Weighted Averages
Personal Samples
—indicates data not provided

The report contained limited information as to specific controls in place during the sampling periods; however, Dr. Corn stated that "* * * the controls for the 5 buildings were minimal O&M controls" (Ex. 162–52).

The submission of Mr. Saul, Assistant Commissioner for Occupational Safety and Health, State of Maryland included a summary of the monitoring results conducted for Maryland employees performing building maintenance activities (ex. 162–44). A total of 207 samples analyzed by PCM during May 1988 to June 1990 were analyzed. The real-time values fell into the exposure categories presented in Table VI.

TABLE VII.—ASBESTOS FIBER LEVELS DURING MAINTENANCE ACTIVITIES
[Ex. 162–44]

Fibers/cubic centimeter	No. samples	Percent of samples
<0.01	125	60.4
0.01–0.04	30	14.5
0.05–0.09	24	11.6
0.10–0.20	24	11.6
>0.20	4	1.9

During these activities, workers were required to wear personal protective equipment. In his discussion of the study results, Mr. Saul explained that the four values in excess of 0.2 f/cc resulted from: a removal in which wet methods could not be employed, wetting painted surfaces, removing and wetting metal enclosed pipe lagging, and improperly sealing of a mini-enclosure. He further concluded that these data indicate that the work practices used by these workers are generally effective during these maintenance-type asbestos activities.

In addition to the above studies showing relatively low exposures, almost all below the revised PELs, other submissions showed the potential for Class III work to exceed the PEL.

BCTD submitted studies including those by Keyes and Chesson which reported results of a series of experiments designed to determine fiber levels in asbestos-containing buildings during simulated activities (Ex.9–34 OO, PP and 7–53). They demonstrated (using transmission electron microscopic measurements) that use of dry methods in a room containing damaged ACM and visible dust and debris elevated the fiber level in air significantly, that physical activity (playing ball) within such an area increased fiber levels and that cable pulling activities also raised fiber counts.

HEI submitted an analysis of a data set provided to them by Hygienetics, Inc. which contained data on airborne asbestos fiber concentrations during various maintenance activities performed under an operations and maintenance (O&M) program in a large U.S. hospital (Ex. 162–6). During the period of study, all maintenance work in areas with ACM in the hospital required a permit issued by the Hygienetics project manager on site. The authors concluded "* * * spatial and temporal proximity to maintenance work was an important determinate of PCM fiber levels" (Ex. 1–344, p. 1.8). Jobs involving removal of ACM resulted in higher fiber levels than non-removal jobs [personal samples: mean, removal jobs=0.166 f/cc, non-removal=0.0897 f/cc (Ex. 1–344 p. 1.6)]. HEI concluded that these activities resulted in increased fiber levels (Ex. 1–344, p. 1.8).

OSHA has reviewed and evaluated all available information pertaining to maintenance, repair, and other asbestos-disturbing activities within buildings classified as "Class III" and has concluded that some of these activities can result in significant risk from exposure of workers. The range of activities and exposure potential encompassed by a Class III designation is wide.

The studies generally show that when protective work practices are used by trained workers, exposures are greatly reduced. Thus, OSHA is requiring various work practices and protective measures to reduce exposure to asbestos containing material (or material which is presumed to contain asbestos) and that workers must receive training in courses which include the appropriate techniques to use in handling and/or avoiding such disturbances. OSHA concludes that these are effective, feasible controls needed to reduce significant risk.

Paragraph (g)(8) sets out these requirements. Again, wet methods are required; local exhaust ventilation is required, if feasible; Where the material OSHA has found to be of high-risk, TSI and surfacing material, is drilled, cut, abraded, sanded, chipped, broken or sawed, dropcloths and isolation methods such as mini-enclosures or glove bags must be used; and respirators must be worn; and where a negative exposure assessment has not been produced, dropcloths and plastic barriers (tenting or equivalent) must be used. OSHA believes these mandatory practices will protect employees who perform Class III work from significant risk of asbestos-related effects.

Class IV Work

As defined in paragraph (b), Class IV work consists of "maintenance and custodial work" where employees contact ACM and PACM, including activities to clean up waste and debris containing ACM and PACM. Examples of such work are sweeping, mopping, dusting, cleaning, and vacuuming of asbestos containing materials such as resilient flooring, or any surface where asbestos-containing dust has accumulated; stripping and buffing of asbestos containing resilient flooring, and clean-up after Class I, II, and III work, or other asbestos construction work such as the installation of new asbestos-containing materials. Clean-up of waste and debris during a removal job, or other Class job, is Class IV work. Because in these cases the employee

doing the clean-up is within the regulated area and subject to the same exposure conditions as the employees actually doing the removal, paragraph (9)(1) requires the custodial employee to be provided with the same respiratory protection as the employees performing the removal or other asbestos work.

Generally, exposures for Class IV work are lower than for other classes. Data in the record show this general exposure profile (see for example, Kominsky study, Ex. 119 I, where carpet "naturally contaminated" for year by friable, TSI and surfacing ACM was cleaned using three cleaning methods; all personal samples were below 0.022 f/cc; using allowable methods resulted in the highest personal sample of 0.019 f/cc; see also, data in Ex. 162–52). Other data show even lower exposures for custodial work (see for example, Wickman et al, Ex. L163, where the authors conclude: "This study determined that custodians who performed routine activities in buildings which contained friable asbestos materials were not exposed to levels of airborne asbestos which approached the OSHA action level of 0.1 f/cc. The arithmetic mean value for 38 personal samples, analyzed by TEM, was 0.0009 s/cc, 8 hour TWA for structure lengths greater than 5 μm" (Id at 20). The much higher exposure data from the earlier Sawyer study, (Ex. 84–262A), showed exposure levels ranging to 4.0 f/cc for dry dusting of bookshelves under friable ACM. As noted above, at this rulemaking hearing Sawyer noted that the conditions in the building he studied were unrepresentative of other buildings in the U.S. (Tr. 2157).

OSHA believes the Wickman report is the most complete study available concerning custodial exposures. Because the study was submitted into the record after the close of the post-hearing comment periods, OSHA is not relying on it to prove the extent of exposures anticipated in most custodial work. Rather, OSHA views the Wickman study as confirming its view that Class IV activities result in reduced exposure and thus, reduced risk compared to activities of other classes. Because maintenance work involving active "disturbances" is Class III work, the "contact" with ACM which constitutes Class IV work will be either with intact materials, or in cleaning-up debris from friable material or from material which has been disturbed. The latter activities present the higher risk potential. OSHA acknowledges that evidence of asbestos disease among school custodians and maintenance workers has been submitted to this record (See e.g., references cited in SEIU's post hearing brief, Ex. 144). The Agency believes that significant exposures to custodians result from Class III work or when they clean up accumulations of friable material. Therefore, these revisions contain several requirements aimed at reducing custodial exposures when cleaning up asbestos debris and waste material.

OSHA believes that the work practices and precautions prescribed in these regulations will virtually eliminate significant health risks for custodial workers, and will cure any confusion about which protections and which standards will apply to custodial worker (see submission of SEIU, Ex. 144).

Custodial work is covered in all three standards. Housekeeping provisions in the general industry standard, paragraph (k), cover custodians in public and commercial buildings, in manufacturing and other industrial facilities, where construction activity is not taking place. To avoid confusion, and to cover clean-up, and other housekeeping on construction sites, which properly is covered under the construction standard, similar "housekeeping" provisions are included in the construction and shipyard standards as well (Paragraph (1). These housekeeping provisions are discussed separately. The specific provisions in paragraph (g), relating to Class IV work in the construction standard relate to construction work only, and are not necessarily limited to housekeeping. Like all other construction work, competent person supervision of Class IV work is required, exposure assessments of clean-up of waste and debris, and use of HEPA filtered vacuums, in paragraph (g)(1) apply.

Particular requirements were adopted in response to concerns of some participants. These are paragraph (g)(9) which requires specific awareness training for Class IV workers. Under the 1986 standard, training was not required unless employees were exposed above the action level, then 0.1 f/cc. Two labor organizations representing employees who perform Class IV work, SEIU and AFSCME, and other participants, (see e.g., Ex. 141, 144), noted that custodial workers needed training, separate from other building service workers, such as maintenance workers (Ex. 141 at 49), generally referred to as "awareness training." The record shows the lack of awareness that material contained asbestos contributed to asbestosis (Tr. 959 ff). Paragraph (g)(9) of the construction and shipyard standards requires that Class IV asbestos jobs be performed by employees trained according to the awareness training set out in the training section, (k)(8). The general industry standard, also requires that employees who work in areas where ACM or PACM is present, also be so trained, in paragraph (j).

In addition, paragraph (g) requires employees cleaning up waste and debris in a regulated area where respirators are required to be worn to also wear respirators. This restatement of the provision in paragraph (e)(4) relating to regulated areas emphasizes that clean-up workers in large-scale jobs must wear respirators, even though the actual removal is completed. Paragraph (g)(g)(iv) offers significant protection to custodians. As pointed out by participants, custodians have swept up "insulation debris which had fallen to the floor because it was so badly deteriorated * * * with no knowledge or concern about asbestos hazards * * *" (see testimony of Ervin Arp at Tr. 962–969). This new provision requires that "(e)mployees cleaning up waste and debris in an area where friable TSI and surfacing ACM is accessible, shall assume that such waste and debris contains high-risk ACM. Since paragraph (k) requires that such ACM and PACM be visibly labelled, OSHA believes that custodial workers will be spared the consequences of being required to clean-up unidentified materials, which in fact contain asbestos.

Various participants asked OSHA to require an employer to adopt and operations and management (O&M) program to protect custodial and maintenance workers. The Agency notes that the 1986 standard contained, in non-mandatory Appendix G, such a program, which listed precautionary actions which the Agency recommended.

OSHA has not adopted an explicit O&M program requirement in these standards. Rather, the Agency has adopted enforceable provisions which cover the major elements of the previous non-mandatory program in the appendix, and of various programs suggested by participants in this rulemaking. For example, the new requirement that maintenance and custodial work be the subject of exposure assessments, [see paragraph (f)(2)], requires the competent person to evaluate operations which may expose employees to asbestos, in order to minimize exposure. The requirement is "operation" based; rather than, as in an O&M program, status-based. However, any active disturbance constitutes an operation. Although each "operation" must be covered by an exposure assessment, operations can be grouped. Cleaning up debris in an area containing

deteriorating ACM on a daily basis, need not be evaluated each day. An assessment of such activity can be made on a general basis, covering procedures for wet sweeping and vacuuming, disposal, and instructions to detect deterioration of material which contributes to the debris. Additionally, labelling of ACM and PACM usually considered part of an O&M program, is separately required, as is training of custodial workers. Specific jobs may require specific instructions; the breadth of some are indicated by O&M documents generated by the EPA "Green Book" (Ex. 1–183, EPA 20T–2003, July 1990 and NIBS Ex. 1–371). OSHA believes that competent person supervision of activities under this standard will provide appropriate work practices to be followed for relatively small, less hazardous exposure situations. The Agency is requiring however, in the training provisions, that when Class III and IV workers are trained, that the contents of the EPA or state approved courses for such workers, as the relate to the work to be performed, be part of the required training material [paragraph (k)(v)(D)].

The issue of passive exposure, that is where active contact or disturbance of ACM is not a contributing factor to asbestos fiber release, is covered by the various notification and identification provisions in the standard which will allow employees to identify asbestos-containing material. These are discussed later in this preamble.

In OSHA's expert view, these provisions constitute major components of operations and maintenance programs recommended; are aimed at the more significant sources of exposure for custodial workers, and most importantly, are enforceable. For all these reasons, OSHA believes an explicit requirement for an O&M program, such as suggested by AFSCME (Ex. 141 at 36), would add little benefit to employee health (see e.g., Tr.3500).

In each standard, OSHA is requiring specific work practices and a choice of engineeromg cpmtrp; however, OSHA is aware that some asbestos control systems may be patented. OSHA has not considered the existence of patents or their validity in evaluating the need for those controls. OSHA believes that all employers will have a variety of controls available to them and that new types could be developed.

(8) Respiratory Protection

Paragraph (g) General Industry

The 1986 general industry standard required respirator use where engineering and work practice controls are being installed, in emergencies, and to reduce exposures to or below the PELs where feasible engineering controls and work practices could not achieve these reductions. Additionally, certain operations i.e., cutting in plants, were shown to have greater difficulties in achieving low exposures without respirator use. OSHA therefore allowed routine respirator use in those segments to reach the PELS, rather than, as in other general industry segments, only where the employer shows that feasible engineering and work practice controls cannot achieve compliance with the PELs. OSHA now believes that engineering and work practices in the few remaining production sectors can achieve lower levels than predicted in 1986, in part because of the mandatory work practices now included in the methods of compliance section. Therefore, allowing respirator use at higher measured exposures for a few operations should not result in less protection for those employees since their ambient exposure levels are expected to be reduced.

Paragraph (h) Construction Standard and Shipyard Employment Standard.

The respirator provisions in the construction and shipyard employment standards are changed in several respects. First, in addition to the conditions listed in the 1986 standards, where exposures exceed the PELs, required respirator use now is triggered by kinds of activities even where the PELs are not exceeded. These are: Class I work, Class II work where the ACM is not removed substantially intact; all Class II and III work where the employer cannot produce a negative exposure assessment; and all Class IV work carried out in areas where respirators are required to be worn. OSHA has based these decisions on the demonstrated variability during asbestos work, and on the need to protect workers who are disturbing asbestos-containing material with the greatest potential for significant fiber release. In addition, monitoring results for many jobs are not available in a timely fashion. By requiring routine respirator use in jobs which OSHA finds are likely to result in hazardous airborne asbestos levels, such as floor tile removal, where most tiles are broken, OSHA is providing reasonable supplemental protection to employees when certainty concerning exposure levels is not possible.

The kind of respirators required for these "conditions of use" are set out in paragraphs (h)(iv) and (v). In one situation, as explained below, Class I removals where excessive levels are predicted, "supplied air respirators operated in the positive pressure mode" are required, because these jobs have the highest exposure potential, due to their size, duration and the kinds of material involved. Other jobs where higher than usual exposures may occur include, where employees are inexperienced, where TSI and surfacing ACM is disturbed, and where other ACM is broken up during removal. Paragraph (h)(1) states the requirement for supplemental respirator use for these activities as well. These additional respirator requirements conform to OSHA's findings on this record, of the specific conditions which contribute to and are predictive of, higher exposures.

As discussed more fully in the classification section, the data submitted to the record show that in almost all cases of removals and disturbances of non-high-risk ACM, exposure levels are well below the protection factor limits for negative-pressure half-mask respirators, the type required for certain kinds of Class II and III work.

BCTD has recommended that OSHA require the use of "the most effective respirator that is feasible under the circumstances" and further that OSHA require "supplied air respirators which are tight fitting and in a pressure demand mode with either auxiliary SCBA or a HEPA egress cartridge * * * except in limited circumstances which include lack of feasibility because of the configuration of the work environment or an uncorrectable safety hazard" (Ex. 143 at 65–69). BCTD does recognize safety hazards due to the tripping hazard of air lines to which SARs are attached and define certain activities in which PAPRs may be used instead. (Ex. 143 at 71). BCTD also contended that the protection factors used by OSHA to assign respirator classes are contrary to record evidence.

The Court found that OSHA's judgment about supplied air respirators was properly within its discretion. It expressed concern that OSHA's respirator requirements did appear to require only that the combined effect of engineering and work practice controls and respirators limit exposure only as low as the PEL where significant risk remained (838 F.2d at 1274).

OSHA responded to these issues in a **Federal Register** publication of 5 February 1990 (55 FR 3727), in which the Agency reaffirmed its position concerning effectiveness levels of respirators, pointed out flaws in studies BCTD used to conclude that protection factors are inadequate, and noted that OSHA is revising and updating its general respirator standard. OSHA also noted that implementation of the entire

respirator program would result in exposures below the PEL. That was OSHA's final statement of position on these issues and it was not judicially challenged.

In evaluating the respiratory protection needs dictated by the new system of ranking for asbestos operations by "class," OSHA has concluded that there are circumstances in which the highest level of respiratory protection must be used. These are Class I jobs for which a negative exposure assessment (i.e. exposures will be less than the PEL) has not been made. Inexperienced workers removing large amounts of TSI or surfacing ACM are at the high end of the risk spectrum and must have additional protection afforded by the supplied air respirator. OSHA notes that joint EPA-NIOSH recommendations would require a supplied air respirator in even more extensive circumstances, i.e., all "abatement" work and maintenance and some repair work (EPA/NIOSH Guide, referenced at Ex. 143, p. 69). The Agency"s decision balances the acknowledge potential safety hazards of supplied air respirators with the need for more protection in the most risky asbestos jobs. The Court of Appeals has agreed that such judgments are properly within the discretion of the Agency (858 F2d at 1274). In situations where the competent person makes a determination that exposures in Class I jobs will be less than the PELs, the standard requires that a half-mask air purifying, non-disposable respirator equipped with a high efficiency filter must be used. There are two reasons for this requirement: exposures less than the PEL have been determined to result in significant risk, the record shows that Class I work may result in substantial exposures even when good conditions exist, and the variability usually results in some high exposures. However, although all classes of asbestos work are potentially risky, OSHA has used discretion, and has limited the supplied air respirator provision to the highest risk situations, Class I work where it cannot be predicted that exposures will not exceed the PEL. This approach does not leave workers doing other classes of work unprotected. The respirator selection Table D–4, applies to all situations other than Class I work. As the worker(s) gain experience in the use of control methodology, and data accrues documenting low fiber levels, use of less protective respirators may be allowed.

Furthermore, OSHA has based this conclusion on the demonstrated variability of exposures in the construction industry (Ex. 143, p. 63, CONSAD report p. 2.18, Tr. 2156, 2157, Tr. 4571, Ex. 7–57). The contractor Consad reported "while many of the construction jobs monitored did not produce exposure levels above the proposed PEL of 0. 1 f/cc, these data also provide continued evidence that exposure levels can be highly variable in construction work and can exceed the proposed PEL * * * for many of the construction activities examined here" (Ex. 8, 2.18–20).

Shipyard Employment Standard

Paragraph (h). SESAC has recommended the deletion of the qualitative fit test from the shipyard employment asbestos standard. Their rationale is as follows:

> The Committee has determined that advances in quantitative fit testing instrumentation have made this procedure accessible to shipyards conducting asbestos operations at a cost which is not overly burdensome ($5,000–6,000 at the low end). Because quantitative fit testing provides a better evaluation of fit among respirators than qualitative methods, and does not rely on subjective determination by the employees, qualitative fit testing methods have been deleted as acceptable alternatives * * * (Ex. 7–77).

They further recommended, based on the recent developments in technology that the use of test chambers, and the requirement for use of aerosols be deleted. They also offered an additional definition: "challenge agent" means the air contaminant, or parameter, which is measured for comparison inside and outside of the respirator facepiece." These are reasonable suggestions, but as they have general application outside shipyards, OSHA indicated this in its notice of February 5, 1990 in its partial response to the Court. The Agency is "still planning to revise and update its general respiratory standard, and believes that continuing to enforce the current asbestos respirator requirements during this interim period will not expose employees to unnecessary risk" (55 FR 3728, February 5, 1990). Therefore, OSHA will not delete the qualitative fit test from the asbestos standard(s), but will consider the issue in the context of the general respiratory standard.

SESAC objected to the requirement that a powered, air-purifying respirator be supplied in lieu of a negative-pressure respirator when the employee chooses it and when it will provide adequate protection. They felt that the employer should be allowed to provide an airline respirator or powered air-purifying respirator. They reasoned that most employers already will have airline respirators in stock and will not need to purchase or maintain any other type of respirator. In evaluating similar comments in the rulemaking for the 1986 revised asbestos rule, OSHA stated:

> OSHA agrees that positive-pressure supplied-air respirators provide a greater level of protection than do half-mask negative-pressure respirators. OSHA believes that employers should have the flexibility to use any of the available respirators that provide sufficient protection to reduce the exposures to levels below the PEL. Furthermore, the safety problems associated with the use of supplied-air respirators cannot be ignored. OSHA believes that respirators should be selected that both provide adequate protection from exposure to airborne asbestos fibers and minimize the risk of accident and injury potentially caused by the use of cumbersome supplied-air respirators (51 FR p. 22719, June 20, 1986. p. 22719).

After that rulemaking, BCTD challenged OSHA's refusal to make air supplied respirators mandatory. The Court accepted OSHA's explanation—that supplied-air respirators had hazards of its own, and stated "this sort of judgment * * * (is) within OSHA's discretion in the absence of evidence supporting the view that the incremental asbestos safety gains plainly exceed the incremental non-asbestos hazards" (838 F.2d at 1274). OSHA reiterated these reasons in its January 28, 1990 response to the Court's remand.

As discussed above, OSHA has determined on this record that supplied air respirators are required for Class I work where a negative exposure assessment is not forthcoming, but not for other Class I work. Therefore, shipyard employees doing the most hazardous work must wear this most protective respirator as well.

(9) Protective Clothing

Paragraph (h) General Industry. OSHA is making no changes in the protective clothing provisions for general industry. Paragraph (i) Construction and Shipyard Standards.

There are several protective clothing issues in this rulemaking. The first issue involves the impact of the Class system on the personal protective clothing provisions. The existing standard requires that protective clothing be provided and worn when exposures exceed the PEL. The revised standards maintain this requirement. In addition, the revised standards require the use of personal protective clothing when Class I work is performed and when Class III work involving TSI and surfacing ACM is performed in the absence of a negative exposure assessment. OSHA believes that this change brings the standard in line with OSHA's 1986

intentions wherein the Agency believed that removal of thermal insulation and surfacing materials would result in exposures that exceed the PEL. This rulemaking record shows that some employers have developed control strategies that can reduce exposures below the PELs, for most of the time. However, as previously discussed, work with high-risk materials has substantial potential for over-exposure. Furthermore, studies have documented that in the past workers have brought asbestos contaminated clothing home with them and thereby caused exposure and asbestos-related disease among family members. OSHA believes that this standard must prevent such conditions, and the nature of Class I work and Class III work with high risk materials merits special consideration. Nearly all rulemaking participants agree on this point.

OSHA notes however, that the judgment to require protective clothing for asbestos work is a subjective one, to some extent, requiring judgment on the part of the competent person. The hazard from asbestos is associated with inhalation of fibers that are in the air, not from asbestos that comes in contact with the skin, like some other chemical that OSHA has regulated (such as methylenedianiline and benzene), which are absorbed through the skin and are systemic toxins. Asbestos fibers that are on clothing can become airborne, so OSHA continues to believe that situations where airborne fiber levels are high are also those which are likely to contaminate clothing. Therefore, the regulation continues the requirement for protective clothing and its proper disposal/cleaning. OSHA does not believe, however, that protective clothing is required for every operation involving asbestos.

In the 1986 standards OSHA did not require that protective clothing be impermeable; in fact, OSHA responded to concerns that disposable clothing which was impermeable not be permitted because it was claimed to contribute to heat stress (see discussion at 51 FR 22722). Although the issue was not remanded to OSHA by the Court, several participants in the current rulemaking focussed comment on the issue of whether OSHA should require work clothing during asbestos work be impermeable to asbestos fibers in each of its asbestos standards. Most of those who addressed the issue expressed support for having such a requirement (Exs. 7–10, 7–67, 7–69, 7–138, 7–192, 7–195, 1–242, Tr. 1122, 1142, 1950, 3003 and 3156). It should also be noted that several of these commenters were manufacturers of such fabric or clothing. They also encouraged OSHA to set a requirement that all garments meet the requirements of the ANSI standard 101–1985.

Charles Selzenberg of Dupont presented a study which was performed at their behest by A.D. Little which indicated that neither shampooing the hair nor showering following simulated asbestos exposure completely removed fibers from hair or skin (Ex. 76) to support their request for an impermeable clothing requirement. In response to questioning about heat stress, he stated that:

> We've had projects for years on improving the breathability of Tyvek and in fact we have some material that exhibits improved breathability and the problem you always get when you get more breathability, you get more asbestos. There doesn't seem * * * a way to have a perfect filter that keeps out all fibrous material but lets a lot of air through * * * (Tr. 3444).

OSHA continues to believe that heat stress is also a concern in use of protective clothing made of impervious fabric. It should again be noted that the route of exposure of asbestos fibers which creates a health hazard is inhalation, not skin absorption. The Agency reiterates its belief that non-disposable work clothes provide sufficient protection provided they are properly cleaned after work and laundered. The Agency agrees that disposable fiber-impermeable clothing can be safely worn if "employers * * * use appropriate work-rest regimens and provide heat stress monitoring * * *" (51 FR 22722). However, OSHA does not believe that totally impermeable clothing is a necessary requirement for asbestos work.

(10) Hygiene Facilities and Practices

Paragraph (j) Construction and Shipyard Employment Standards.

OSHA is changing the decontamination requirements in minor details to correspond to its new system of categorizing asbestos work according to its potential risk. The primary requirement that asbestos abatement workers be decontaminated following their work using a 3-part system—an equipment room, a shower room, and a clean room, is retained. Thus, most workers performing Class I work, removing TSI or surfacing ACM or PACM, as before, must use a shower adjacent to and connected with the work area.

With the introduction of new provisions identifying 4 classes of asbestos work, it is necessary that OSHA modify its requirement for hygiene facilities and practices to reflect these changes. OSHA continues in its belief that the requirements must be proportional to the magnitude and likelihood of asbestos exposure. Therefore the most hazardous asbestos operations—those involving removal of more than threshold amounts of thermal system insulation or sprayed-on or troweled-on surfacing materials must employ a decontamination room adjacent to the regulated area (most often, a negative-pressure enclosure) consisting of an equipment room, shower room, and clean room in series through which workers must enter and exit the work area, as required in the 1986 standard.

For Class I asbestos work, OSHA has further determined, based on its consideration of the rulemaking record, that there are 3 exceptions to the requirement that the shower facility be located immediately contiguous to the work area. These include, outdoor work (See Ex. 7–21, 7–99, 7–145), shipboard work (Ex. 7–77 and see discussion below), and situations where the employer shows such an arrangement is infeasible. OSHA will again allow in these limited circumstances the workers to enter the equipment room, remove contamination from their worksuits using a portable HEPA vacuum or change to a clean non-contaminated workclothing, and then proceed to the non-contiguous shower area. Outdoor work affected by this requirement will occur mainly in industrial facilities such as refineries and electrical power plants when specified work practices are employed and following outdoor asbestos work.

OSHA intends that HEPA-vacuuming procedures be performed carefully and completely remove any visible ACM/PACM from the surface of the worker's work suit, including foot and head coverings, skin, hair and any material adhering to the respirator.

Also for Class I work involving less than 10 square feet or 25 linear feet of TSI or surfacing ACM (the thresholds referenced above), during which exposures are unlikely to exceed the PELs for which there is a negative exposure assessment, OSHA is allowing less burdensome decontamination procedures which it believes are compatible with the scheme to classify asbestos work according to risk potential. In these operation, an equipment room or area must be set up adjacent to the work area for decontamination use. The floor of the area/room must be covered with an impermeable (e.g., plastic) dropcloth and be large enough to accommodate equipment cleaning and removal of PPE without spread of fibers beyond the area. The worker must HEPA vacuum

workclothing, hair, head covering as described above and dispose of clothing and waste properly. Thus, only if the employer shows that for these smaller dimension jobs that the PEL is unlikely to be exceed may the decontamination procedure be abbreviated.

For asbestos operations which are Class II and III which are likely to exceed the PELs and for which a negative exposure assessment is not produced, showering is required, but may be performed in a facility which is non-contiguous to the work area. Use of dropcloths, HEPA vacuuming of workclothing and surfaces as above or the donning of clean workclothing prior to moving to a non-contiguous shower is required.

Following those Class II, III and IV jobs which the employer demonstrates are unlikely to exceed the PELs and for which a negative exposure assessment has been produced, the worker must HEPA vacuum his clothing on an impermeable dropcloth and perform other clean-up on the dropcloth avoiding the spread of any contamination. However, showering is not required.

OSHA is also concerned that workers performing clean-up (Class IV work) following larger abatement work receive appropriate decontamination. Therefore, employees who perform Class IV work in a regulated area must comply with the hygiene practice which the higher classification of work being performed in the regulated area requires.

Shipyard Employment Standards; Paragraph (i)

In other comments the Shipyards Employment Standards Advisory Committee objected to the requirement in the 1986 standard that showers be located contiguous to the work area. They said that this was not a part of the general industry standard and that they wished to continue to provide showers in fixed facilities on shore; that although contiguous showers may not be technologically infeasible, it was impractical. They further stated that change rooms required under the general industry asbestos standard cannot be provided on ships and that the worker must be allowed to remove contaminated clothing in an equipment room as in the construction standard (Ex. 7–77).

The Committee suggested several specific steps to the decontamination process required of workers following work in a shipboard asbestos activity. According to these recommendations, the employer shall ensure that employees who work within regulated area exit as follows:

Remove asbestos from their protective clothing using a HEPA vacuum as they move into the equipment room;

Enter the equipment room and remove their decontaminated outer layer of protective clothing and place them in the receptacles provided for that purpose;

Enter the decontamination room and perform personal HEPA vacuuming;

Remove respirator after exiting decontamination room;

Wash their face and hands prior to eating or drinking;

If they are not going to make another entry into the regulated area that day, proceed to the shower area and change room; and,

Don street clothing (Ex. 7–77).

OSHA believes these are reasonable suggestions. The final standard permits this approach based on the flexibility permitted by the language. Those who shower at remote facilities are required to decontaminate their protective clothing prior to proceeding to the remote showers. The Committee also recommended that, for the sake of modesty, the worker must be allowed to continue to wear the underwear which he had worn under his protective clothing during the process of decontaminating his clothing—removing them when entering the shower. The 1986 standards are silent on this point and it seems reasonable that persons would be allowed to continue to wear his/her underwear during HEPA vacuuming and removal of protective clothing.

The committee pointed out that the general industry standard requires lunch*rooms*, while the construction standard requires lunch *areas*, and that areas were sufficient. OSHA agrees that it is unnecessary to build lunchrooms in shipyard facilities, so long as the area provided for food consumption is not so close to the work area that asbestos contamination is likely. In that case, *areas* are insufficient and an enclosed *room* must be provided which is free of contamination.

(11) Communication of Hazards to Employees

Paragraph (j) General Industry. Paragraph (k) Construction and Shipyard Employment Standards.

The "communication of hazards" provisions of the standards contain many revisions. The Court in 1988 had remanded two information transfer issues for OSHA's reconsideration. These were to extend the reporting and information transfer requirements and to require construction employers to notify OSHA of asbestos work. As discussed earlier, OSHA has decided not to require general pre-job notification to the Agency. However, the Agency has expanded required notifications among owners, employers and employees. Basically, the general industry standard has been upgraded to the more extensive notification requirements of the construction standard and the shipyard employment standards. Consequently this preamble section discusses the issues together. In the shipyard standard the "building owner" may be a vessel owner or a building owner. OSHA notes that in shipyards vessels undergoing repair may be owned by foreign entities, as well as by entities subject to the Act's jurisdiction. When a foreign-owned vessel is repaired in an American shipyard, the employer (either the shipyard or an outside contractor) must either treat materials defined as PACM as asbestos-containing or sample the suspect material and analyze it to determine whether or not it contains asbestos.

An overview of these revisions follows. The construction and shipyard standards now require that employers who discover the presence of material which is ACM or is presumed ACM (PACM) on the worksite, must notify the project or building owner. On worksites having multi-employers, the person who discovers the material also is to notify the other employers. An employer on a multi-employer worksite who is planning Class I or Class II asbestos work is to inform all the other employers on the site of the presence of ACM to which employees of those employers might reasonably be expected to be exposed. They are to be informed of the location and quantity of these materials and the measures to be taken to protect them from exposure.

The 1986 construction standard required employers to notify other employers on multi-employer worksites of the existence and location of asbestos work, but was silent on the notification role of building owners. OSHA was concerned that building owners were "outside the domain of the OSH Act." As noted above, this is a specific issue remanded for reconsideration by the Court of Appeals. Now, upon reconsideration, OSHA believes that it has authority to require building owners [as defined in paragraph (b)] who are statutory employers, to take necessary and appropriate action to protect employees other than their own. In the 1990 proposal OSHA pointed to other standards in which it has required building owners and other employers who are not the direct employers of the employees exposed to particular hazards, to warn of defects, take remedial action, or provide information to the directly employing employer. It cited the Hazard Communication

Standard's requirement that manufacturers provide information to downstream employers (29 CFR 1910.1200) and the Powered Platform standard which requires the building owner to assure the contract employer that the building and equipment conform to specified design criteria as examples (29 CFR 1910.66(c).)

OSHA believes that the building or project owner is the best and often the only source of information concerning the location of asbestos installed in structures; therefore, OSHA is requiring the owner to receive, maintain, and communicate knowledge of the location and amount of ACM or PACM to employers of employees who may be exposed. OSHA acknowledges that in shipyards, foreign vessel owners are not "statutory employers" and thus, are not covered by these standards. In such cases, the employer performing the "refit" must either presume that TSI and surfacing material are asbestos-containing, or have the material tested. When turn-around time must be minimized, the case in many overhauls, OSHA expects that the jobs will be performed in conformity with this standard without testing.

The final rule provides a comprehensive notification scheme for affected parties—building owners, contract employers and employees, which will assure that information concerning the presence, location, and quantity of ACM or PACM in buildings is communicated in a timely manner to protect employees who work with or in the vicinity of such materials. Before Class I, II, or III work is initiated, building and/or project owners must notify their own employees and employers who are bidding on such work, of the quantity and location of ACM and PACM present in such areas. Owners also must notify their own employees who work in or adjacent to such jobs.

Employers, who are not owners, planning any such covered activity must notify the owner of the location and quantity of ACM and PACM known or later discovered. The building owner must keep records of all information received through this notification scheme, or through other means, which relates to the presence, location and quantity of ACM and PACM in the owner's building/project or vessel and transfer all such information to successive owners. OSHA reaffirms its finding of the 1986 standard that an employee's presence in the workplace places him at increased risk from asbestos exposure regardless of whether he/she is actually working with asbestos or is just in the vicinity of such material.

OSHA has defined "building owner" to include these lessees who control the management and recordkeeping functions of a building /facility/vessel. It is not OSHA's intention to exempt the owner from notification requirements by allowing a lessee to comply. Rather when the owner has transferred the management of the building to a long-term lessee, that lessee is the more appropriate party to receive, transmit, and retain information about in-place asbestos. When a lease has expired, any records in the lessee's possession must be transferred to the owner or the subsequent lessee exercising similar managerial authority. The expanded notification provisions also require that on multi-employer worksites, any employer planning to perform work which will be in a regulated area, before starting, must notify the building owner of the location of the ACM and the protective measures taken; upon discovering unexpected ACM, they must provide similar notification; and, upon work completion they must provide to the owner a written record of the remaining ACM at the site.

OSHA has included a provision that within 10 days of the completion of Class I or II asbestos work, the employer of the employees who performed the work shall inform the owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the former regulated area and shall also inform him/her of the final monitoring results taken in that operation. OSHA has determined that the employer of employees reoccupying the area must have this information in order to provide the appropriate protection to his/her workers.

To provide effective notification in Class III asbestos operations, OSHA is building upon its earlier requirement to *post* warning signs in regulated areas. Now since all Class III work must be conducted in a regulated area all maintenance-type operations will be posted with signs, which state the fact that asbestos exposing activities are present. OSHA considers site posting to be a particularly effective means to alert employees of hazardous areas where relatively short-term repair and maintenance activities are taking place. OSHA believes that site posting will adequately notify potentially affected employees who are not working on the operation, but are working within the area or adjacent to it.

Identification of Asbestos-containing Materials in Buildings and Facilities

In addition to the "notification" issues just discussed, OSHA addresses a related widespread concern expressed by participants in this rulemaking: how to ensure that workers in buildings and facilities with previously installed asbestos containing products, are not exposed to asbestos fibers merely because they have no knowledge of where such products were installed. OSHA has found that such workers, primarily maintenance workers and custodians, but also contract workers such as plumbers, carpenters and sheet metal workers and workers in industrial facilities have shown historic disease patterns which in large part resulted from exposure to previously installed asbestos. (see discussions elsewhere in this preamble of data submitted by BCTD, AFSCME, SEIU and others). In its 1990 proposal OSHA raised the issue of how to identify previously installed asbestos and asked for comments and recommendations (55 FR 29730). OSHA opened the record for supplemental comments in November 1992, in a notice which also set out OSHA's preliminary views on how to effectively protect workers from unknowing exposure to previously installed ACM (57 FR 49657). There, OSHA proposed to require employers to presumptively identify certain widely prevalent and more risky materials. These are thermal system insulation, and sprayed-on and troweled-on surfacing materials, in buildings built between 1920 and 1980. These materials were to be termed "presumed asbestos containing materials" (PACM) and were to be treated as asbestos containing for all purposes of the standard. OSHA would have allowed building owners and employers to rebut these presumptions using building records and/or bulk sampling.

The final provisions which are included in all three standards, like OSHA's 1992 approach, require building owners and employers to presume that thermal system insulation (TSI) and sprayed-on and troweled-on surfacing materials contain asbestos, unless rebutted pursuant to the criteria in the standard. Additionally, OSHA is requiring in its mandatory work practices for flooring material containing asbestos, that employers assume that resilient flooring material consisting of vinyl sheeting, and vinyl and asphalt containing tile installed before 1980 also be presumed to contain asbestos (see discussion in the "Methods of Compliance" section). Unlike the proposal, buildings constructed before 1920 are not excluded from these requirements. Also rebuttal criteria have been changed. Unlike the approach OSHA suggested in

the November, 1992 notice, building records may *not* be relied upon to rebut the presumption of asbestos containing material and more detailed instructions are supplied for the inspection process.

OSHA believes that these provisions will protect employees in buildings and facilities from the consequences of unknowing significant exposure to asbestos in the most cost-effective manner.

Participants supported OSHA's "presumptive" approach to identifying asbestos-containing material; in particular, designating only TSI and surfacing ACM for presumptive treatment (see e.g., utility companies such as Southern Cal. Edison, Ex. 162–4; Con Edison, Ex. 162–54; Duke Power, Ex. 162–57; property management companies and associations, e.g., JMB Properties, Ex. 162–29; trade associations, e.g., O.R.C., Ex. 162–12; International Council of Shopping Centers, Ex. 162–58).

As stated in the November 1992, OSHA continues to believe that the major advantage of such a regulatory approach is that the materials and buildings/facilities with the greatest risk potential would be automatically targeted for mandatory communication and control procedures, and possible testing. Focusing on high-risk building/facility situations avoids the dilution of resources and attention which might result from requiring broader inspections. Other building/facility areas and material would not be exempt from the standard's control requirements; however, they would not be presumptively considered to contain asbestos. If a building owner or employer has actual knowledge of the asbestos content of materials, they must comply with the protective provisions in the standard. Similarly if there is good cause to know that material is asbestos containing the employer and/or building owner is deemed to know that fact. The current enforcement rules governing "employer knowledge" would be applied in a contested case to determine the application of the asbestos standard to other materials or building/facility areas which the employer claims he did not know contained asbestos.

OSHA believes that this presumptive approach allows building/facility owners whose buildings/facilities contain PACM and other employers of employees potentially exposed to PACM flexibility to choose the most cost-effective way to protect employees. They may treat the material as if it contains asbestos and provide appropriate required training to the custodial staff; test the material and rebut the presumptions; or combine strategies.

OSHA considered a number of approaches to insure that workers do not become exposed to asbestos unknowingly. As noted in the 1992 notice, one option was clarifying in the preamble to the final rule the current enforcement policy that a prudent building/facility owner or other employer exercising "due diligence" is expected to identify certain asbestos-containing materials in his/her building/facility before disturbing them. After reviewing the record, OSHA believes its presumption approach is more protective. "Due diligence," is, in part, a legal defense, invoked by and in order to shelter employers against OSHA citation. Thus in the past, employers who were wrongly informed by building owners about the asbestos content of thermal system insulation successfully argued in some cases that they had exercised "due diligence." OSHA believes that the protection of employees must not depend on the good faith of their employers whose information sources may be defective. By requiring that TSI and troweled- and sprayed-on surfacing material be handled as if they contain asbestos, employees will be protected from the consequences of their employers relying on erroneous information about the most risky asbestos materials. Of course, "due diligence" would also require employers to investigate whether other building material about which there was information suggesting asbestos content, was in fact asbestos-containing. A building owner/employer, for other materials, also may presume they are asbestos-containing, label and treat work with them as asbestos work, without testing the material for asbestos content.

Another option OSHA considered was requiring a comprehensive AHERA-type (EPA's schools rule) building/facility inspection. AHERA (Asbestos Hazard Emergency Response Act, 40 CFR 735) requires that all school buildings be visually inspected for asbestos-containing building materials (ACBM) by an EPA-accredited inspector and that inventory of the locations of these materials be maintained. Under AHERA, school maintenance and custodial staff who may encounter ACBM in the course of their work receive at least 2 hours of awareness training, and for staff who conduct activities which disturb ACBM, an additional 14.

Requiring comprehensive building and facility inspections like EPA does under AHERA was recommended by participants presenting labor interests (e.g., AFSCME Ex. 162–11; SEIU, 162–28; AFL-CIO, Ex. 162–36; BCTD, Ex. 162–42): by engineering, management and asbestos abatement firms, (e.g., Abatement Systems, Inc. Ex. 162–8, California Association of Asbestos Professionals, Ex. 162–27); and by representatives of state health agencies (e.g., North Carolina Department of Health and Natural Resources, Ex. 162–46; N.Y.C. Department of Environmental Protection, Ex. 162–47).

Although there was substantial support for a comprehensive inspection requirement, OSHA believes that the regulatory approach in these final standards will achieve equivalent or superior protection to exposed workers at much reduced cost.

The reasons are as follows. A comprehensive wall-to-wall inspection requirement is found to be unnecessary to protect employees against risks of exposure from asbestos-containing building material of which they are unaware. Such an inspection requirement would be very costly, may be overly broad, the results may not be correct or timely, would not necessarily focus on potential sources of asbestos exposure which present significant risks to employees, and its great expense may divert resources from active protection of workers who actually disturb asbestos. First, OSHA does not believe that protecting employees in buildings from significant asbestos exposure requires that all suspect materials in buildings first be identified. Although all asbestos-containing materials may release fibers when their matrices are disturbed, certain materials are known to be more easily damaged or to suffer more deterioration, and thus cause higher airborne fiber levels than others. As discussed in the November 1992 notice, OSHA determined that thermal system insulation (TSI) and sprayed on and troweled on surfacing materials are such materials. They are potentially more friable, are much more prevalent, are more accessible and are the subject of more maintenance and repair activities than are other asbestos containing materials. They are widely prevalent. A 1984 EPA study limited to residential, commercial and public buildings nationally, found about three quarters of such buildings had asbestos-containing TSI, and over one quarter of the buildings contained sprayed-on or troweled-on asbestos containing surfacing material (see also studies cited in the HEI Report, Ex. 1–344, p. 4–6 to 4–10). The materials are usually accessible. Surfacing material was applied for decorative and acoustical purposes early on, and was later applied as insulation coating to protect structural steel during fires. The HEI

Report in summarizing studies conducted in New York, California, and Philadelphia stated that "(i)mportant findings from these studies include the frequent use of friable surfacing in multi-storied buildings and the high proportion of damage to thermal systems insulation, most of which is accessible only to maintenance personnel (HEI Report, Ex. 1–344, p. 4–8 to 10). The accessibility of thermal system insulation is not limited to employees who directly disturb it to repair or replace the piping and infrastructure it covers. As noted by a participant: in industrial settings there are many sources of fiber release including vibration (people often walk on pipes), exposure to the elements, fans and processes, leaks, process leaks, and releases through joints in metal cladding (Ex. 12–7, Respirable Fibers Management Consultancy, Inc.).

The data submitted to OSHA indicate that these two materials have high exposure potential. For example, the potential of surfacing material to become friable and result in sizable exposures was shown by the Yale Architecture School data, which involved exposure to a "fully exposed acoustical material," a "Spanish moss type material" of low density and high friability (Tr. 2168). Dr. Sawyer, whose study showed very high exposures to custodial employees from exposure to dust and debris from this material, noted that its use in the building was unrepresentative, and that the material usually is "used primarily as a fireproofing material on structural steel that was concealed." (Id). Work in ceiling spaces containing sprayed asbestos show elevated exposure levels (see e.g., studies discussed in HEI, Ex. 1–344, p. 4–74). Data showing high exposure levels from TSI are ample and are discussed in detail in the preamble discussion on methods of compliance.

The data in this record showing exposures to other kinds of asbestos containing material such as gaskets, wallboard, roofing and siding materials show that generally, exposures to these products under comparable controls are lower than those released by the materials designated by OSHA as "high hazard" and for which the presumption applies. The "high-hazard" materials are much more prevalent in buildings and facilities, disturbances of them are more common. Therefore OSHA believes that a targeted approach to presuming the presence of high hazard previously installed asbestos containing materials in buildings which are likely to contain them will provide equivalent protection to potentially exposed employees than a requirement to inspect all buildings and facilities for all asbestos containing materials. Some building owners will continue to conduct comprehensive surveys, others, when cost is an issue, will rely on presumptions to protect employees from potential exposure to high-risk ACM, TSI and surfacing materials.

In addition, even an up-front inspection rule must be targeted to be productive. Since not all facilities contain asbestos materials, an attempt should be made to designate those facilities and buildings where it unlikely that ACM will be found, otherwise the information yield from inspections will be unconnected to worker protection. OSHA is using a temporal cut-off of 1980 for its presumption rule. As discussed later, this date was supported by the record, since buildings constructed afterwards are much less likely to contain even stockpiled asbestos containing materials. In 1975, under the authority of the Clean Air Act, EPA banned the use of spray-applied ACM as insulation and the use of asbestos-containing pipe lagging and in 1978 extended the ban to all uses of sprayed-on asbestos. In this regard OSHA notes that the purpose of a cut-off is not to state a date after which it is certain that no asbestos-containing material has been installed in buildings. Rather, it is to designate when it becomes unlikely that asbestos-containing materials have been used in construction. OSHA believes that 1980 is a reasonable date for marking that probability. As noted above, employers and building owners are still required to investigate materials installed after 1980 when they suspect they may be asbestos-containing.

As discussed above, OSHA additionally refined its presumption by recognizing two broad categories of building materials as "high-risk" and thus that the consequences of a false negative identification supported a such materials be treated as asbestos-containing unless reliable information showed the absence of asbestos. These kinds of materials are TSI and sprayed-on, troweled-on, or otherwise applied surfacing materials. Although as noted the version of an inspection rule urged by most proponents would require inspection for all potential asbestos-containing materials, some participants suggested an inspection requirement which would also concentrate on more potentially hazardous materials first. One suggestion was to, first require inspection of steel structures with sprayed on fireproofing constructed before 1975, next of sprayed-on acoustic ceiling installed before 1980 (e.g., Ex. 162–27). In the Agency's view, phasing in inspection requirements may provide less certainty and protection than its presumption approach. Requiring a "presumption" is an immediate source of protection. Any inspection program takes time and significant resources. Additionally, if inspection of categories of potentially high risk material are delayed under a phased-in-approach, protection is denied pending the start-up date. If judicial challenge is made employers may hold back on any inspections hoping for a court to invalidate the requirement. Even more importantly, evidence in the record also indicates that inspection data sometimes are not reliable. In particular, the Westat Report which evaluated a large sample of school inspections under AHERA, found that although on the whole inspections identified most asbestos-containing materials, "high-risk" surfacing material was unidentified as asbestos containing in 36% of the inspections studied (Ex. 1–326 p. 326). Since surfacing material has been found by OSHA, based on this record to be a high hazard material, OSHA is reluctant to rely on inspections alone to identify it. A presumptive approach requires that material which looks like sprayed on or troweled on surfacing material, be handled with care, without waiting for inspections or relying on the results of inspections which may not correctly identify it.

The Agency asked for comment on its intention to designate thermal system insulation and sprayed-on or troweled-on surfacing material as "high-risk material." Several of those responding to the notice felt the list was too limited and should include all suspect materials (Exs. 162–11, 162–16, 162–18, 162–24, 162–28, 162–33, 162–36, 162–39, 162–42, 162–44, 162–45, 162–46, 162–57). Some, suggested using the list EPA included in its "Green Book" entitled *Managing Asbestos in Place* (Ex. 162–35, 162–42, 162–44).

G. Siebert of the Office of the Secretary of Defense offered an alternate plan—a tiered approach in which thermal system insulation and sprayed-on or troweled-on surfacing materials would be considered high-risk PACM and would be labeled and notification carried out: other material which may contain asbestos (Ex. 162–13). He suggested that other material, should be handled as ACM unless sampling indicates that it does not contain asbestos, but that it not be required to be labeled.

As suggested, OSHA considered extending its presumption requirement to other kinds of building materials which may contain asbestos. A limited extension has been made in two cases.

Because of its accessibility and prevalence, the frequent difficulty of identifying its asbestos content and the frequency of maintenance activity which may disturb it matrix. The Agency is requiring that resilient flooring installed before 1980 be presumed to contain asbestos unless rebutted pursuant to the standard. Debris which is present in rooms, enclosures or areas where PACM or high risk ACM is present and not intact, is assumed to be asbestos-containing. Other building materials which may contain asbestos such as roofing material, ceiling tiles and miscellaneous products listed in EPA's "Green Book" have not been found to be both as widely prevalent and easily disturbed and damaged as are TSI and surfacing material or as widely prevalent, accessible and frequently disturbed as resilient flooring.

Therefore, OSHA believes little additional benefit will result from treating all such building materials which uncommonly contain asbestos as if they do, rather than concentrating resources on protecting employees from exposure to materials when there is actual knowledge or reason to believe they contain asbestos. OSHA notes in this regard that an employer or building owner's duty to investigate the possibility that a material contains asbestos is stronger when the consequences of failing to inquire is increased hazard to employees. For example, in the case where a large section of damaged ceiling tiles installed before 1980 is to be removed, an employer may not ignore the possibility that the tiles are asbestos-containing. By not including some building materials in the presumption OSHA is not reducing an employer's duty to exercise "due diligence" when exposing employees to such kinds of materials. The Agency has determined merely that the record does not compel the adoption of a presumption for such materials; in any such specific case, circumstances may require the employer or building owner to sample and analyze building materials for asbestos content, or to treat the material as if it is asbestos-containing under the standard.

On a different issue, OSHA is not specifying in the regulatory text the qualifications of the person who may designate materials as PACM. Under AHERA, inspections are required to be conducted by certified inspectors (40 CFR 763, also see recent revisions of Model Accreditation under ASHARA, 59 FR 5236–5260, February 3, 1994). The Agency has found that designation of the kinds of building materials as PACM is not an inspection. This process does not require technical training: thermal system insulation is easily recognized; sprayed on or troweled on surfacing material likewise is identifiable. Neither EPA's revised MAP nor OSHA requires specific training or accreditation of persons who only visually inspect the condition of ACM/PACM.

OSHA emphasizes that the presumption must apply even where it appears to knowledgeable building personnel, that material is not asbestos-containing and is composed of other materials, such as fiberglass. Therefore, OSHA has not adopted the suggestion of some participants to specify that certain materials such as fiberglass and neoprene, because they are easily identifiable, should not be included in the presumption (see Ex. 162–57). OSHA notes that HEI distinguished a "visual survey," i.e., the identification of suspect materials from more complete surveys, and notes that "this type of survey may minimize the need for trained consultants." (HEI, Ex. 1–344, at 5.1)

Some participants suggested that OSHA include the condition of the material in its "high-risk" category to be subject to the presumption. Although the condition of the material influences its risk potential, OSHA continues its practice of not distinguishing materials based on their friability. However, the condition of the material is relevant to whether debris, in the presence of ACM, must be presumed to be asbestos containing. The standard requires that debris in an enclosed area where TSI or surfacing ACM is present, and not intact, be presumed to be asbestos-containing.

OSHA has not used friability to distinguish among asbestos containing materials. First, OSHA mainly regulates active disturbances of asbestos, and uses exposure levels as one element in assigning risk-based requirements. Since the friability of material will influence exposure levels, friability is partly subsumed by this reference to exposure levels. Second, the term's precise meaning is unclear, and thus, confusing to the regulated community. The EPA experience in distinguishing risk categories based on friability indicates the complexity of using this concept. In 1973 the EPA–NESHAP had regulated only friable ACM, but later issued a clarification which stated:

> * * *Even though the regulations address only material that is presently friable, it does not limit itself to material that is friable at the time of notification. Rather, if at any point during the renovation of demolition additional friable asbestos material is * * * created from non-friable forms, this additional friable material becomes subject to the regulations from the time of creation (Ex. 1–239, p. 48406).

Third, OSHA's risk categories which are based on the type of material include the potential for friability. For example, surfacing material is loosely bound and therefore is potentially more friable than are other materials and thus is considered to present high risk.

The revised rule also allows the building/facility owner or employer to demonstrate, pursuant to specific criteria, that the material does not contain asbestos. The criteria, specified in paragraph (k)(4)(ii) are similar to the inspection protocols for schools in AHERA, such as sampling and analysis by a certified building inspector.

OSHA also considered allowing the use of specific information in the building/facility owner's possession relating to construction specifications to rebut the presumption. However, many who made submissions during the supplementary comment period, pointed out to the Agency that building records were rarely adequate to convincingly establish the absence of ACM in buildings and recommended that they should not be used for rebutting the presumption (Ex. 162–2, 162–4, 162–5, 162–7, 162–11, 162–12, 162–13, 162–19, 162–22, 162–24, 162–25, 162–27, 162–31, 162–32, 162–33, 162–36, 162–39, 162–42, 162–44, 162–45, 162–46, 162–54). Some felt that building records might be useful in confirming, but not rebutting, the presumption, while others deemed the only reliable records were comprised of an AHERA-like comprehensive building survey with bulk sampling data (Ex. 162–1, 162–12, 162–13, 162–24, 162–27, 162–36, 162–50, 162–58). An owner of commercial properties observed that he had often found it easier to sample the PACM than to locate adequate documentation (Ex. 162–29). A group of environmental lawyers recommended that since EPA in its NESHAP rule declined to rely on building records, OSHA should also for consistency (Ex. 162–22). Members of a consulting firm, noted that before 1980, materials containing less than 5% asbestos by volume were said to be asbestos-free (by EPA). Thus, such materials would be unlikely to appear on building records if they had contained less than 5% asbestos (Ex. 162–7).

In considering the numerous comments on the subject, most of which affirmed the general inadequacy of building records to rebut the presumption, OSHA has not included this as a method to establish that a

building material does *not* contain asbestos.

Paragraphs (k)(1)(ii) and (k)(2)(ii) set out the notification provisions for owners and employers. They instruct them concerning who must be notified of the presence of ACM/PACM and how. Briefly, owners must notify employers who bid for work in or, as tenants, will occupy space where ACM/PACM is present. The owner must also notify employees who will perform work subject to this standard in such areas before such work is begun. This work consists of Class I through IV asbestos work, and the installation of new asbestos-containing material. Similar provisions apply to employers who are not owners. [Paragraph (k)(2)(ii)].

The BCTD suggested that notice of ACM take place early in the contracting process (Ex. 162–42) and a representative of the Interstate Natural Gas Association agreed that pre-bid notification of contractors was needed (Ex. 162–9). OSHA agrees. Requiring notification to prospective contractors at bid time will improve employee protection. Knowledge about asbestos presence gained after bidding may cause the bidder to dilute protection in order to salvage the bid. Contractors may lose time and money if they conscientiously stop a job when asbestos is discovered. Other participants echoed these reasons (see, e.g., NCRA, Tr. 2430–2432; Testimony of C. Gowan, Tr. 834–835.) Notifying employers leasing space containing ACM was also recommended (Ex 162–29).

The standard provides that notification may be either in writing or via a personal communication between the owner and persons owed notification or their authorized representatives. OSHA expects that in the case of contracts for work to be performed, notifications will be included in the bid documents. In other cases it may be "faxed," telephoned or otherwise communicated. OSHA believes these notifications, supplemented by clarified labeling requirements [see (k)(7)(vii)], and regulated area posting, will provide ample information to workers so they will not inadvertently be exposed.

During the rulemaking, participants raised various issues concerning notification. Several participants wanted accessibility to be a consideration in the approach (Exs. 162–5, 162–11, 162–14, 162–23, 162–29, 162–30, 162–33, 162–42, 162–49, 162–55, 162–58, 162–59), and BCTD suggested that "accessible" be defined as "material subject to disturbance by building or facility occupants or maintenance personnel or workers performing renovation, repair or demolition inside and/or outside buildings" (Ex. 162–42).

Most agreed that PACM and/or ACM within areas such as mechanical rooms and boiler rooms should be labeled. For example, Mr. Olson of Dow Chemical Company supported the posting of areas where those who may be exposed will see it before working there (Ex. 162–17). A representative from the Department of Defense felt that general posting in public areas would alarm building occupants and over time, lead to reduced credibility and effectiveness (Ex. 162–13). This was echoed in the comments of J. Thornton of Newport News Shipbuilding who felt that signs "may breed complacency" (Ex. 162–21). One participant worried that perhaps a tenant considering renewing his lease who had been notified of PACM within the building might choose to relocate even though there really was no asbestos-containing materials actually present in the building (Ex. 162–20). OSHA has decided that "accessibility" is relevant to posting information concerning the location of in-place asbestos. Paragraph (k)(7)(vii) requires labels to be attached at "accessible locations." OSHA agrees with BCTD's definition as well.

Some representatives of contractor interests recommended that OSHA use as a model for notification the California regulation by which the building owner provides written notification to all building employees, tenants, and contractors (Exs. 162–27, 162–32).

As noted below, paragraph (k)(7)(vii) requires previously installed asbestos products to be labelled in most circumstances; either visibly labeled in accordance with the standard, when feasible, or that information required on the label be posted as close to the installed product as feasible. Information concerning other previously-installed asbestos-containing products must be posted in mechanical rooms or other areas which are accessible where such material is present; or if the products are installed in other areas, the building owner must otherwise make such information available to employees who perform work covered by this standard. The provision exempts from labeling and posting those products which the manufacturer demonstrates cannot release fibers in excess of the PELs. OSHA has found that this exemption will never apply to PACM (TSI or surfacing ACM); rarely will it apply to other asbestos containing materials, because on this record, disturbance of ACM *can* exceed the PEL. As noted in the comments summarized above, there will be cases where labeling of such materials is not feasible. In such case, the standard requires that signs or labels be displayed as close as feasible to such materials. Additionally, housekeeping workers must be informed that all resilient flooring material they clean, buff or otherwise maintain may contain asbestos.

OSHA believes that the strategy for the flow of information regarding the presence and location of asbestos-containing or presume-asbestos-containing materials it has developed in this revision of its standards will assure that workers who might be exposed to asbestos within public and commercial buildings and/or facilities will be informed of the potential for such exposure and through the training provisions will be made aware of the practices they are to use to avoid exposure.

To further assure the responsible transfer of information, OSHA is requiring that records of the work performed, the location and quantity of ACM or PACM remaining at the completion of the work, and data supporting any rebuttal of the presumption that a material contains asbestos, are to be maintained by the building/facility owner and are to be transferred to successive owners of the building/facility. Further, in the event that ACM/PACM is inadvertently encountered, OSHA has included a requirement for timely notification. If during the course of asbestos work ACM or PACM is discovered at a worksite, within 24 hours of finding such material, information as to its location and quantity are to be conveyed to the building owner and any other employers at the site.

Shipyard Standard

In the reopening of the record for supplemental comments in November 1992, OSHA asked for comment on the application of the proposed scheme for shipyards. There were few specific responses. J. Curran, State of North Carolina Department of Environmental Health and Natural Resources (Ex. 162–46) and BCTD (Ex. 162–42) supported applying the construction standard to shipyards. Mr. Siebert, a representative of the office of the Assistant Secretary of Defense, agreed with others in wanting a separate standard for shipyards to be developed by SESAC (Ex. 162–13).

OSHA has accepted these suggestions and has issued a separate, final standard for shipyards. Its specific provisions are discussed in appropriate places in the preamble. It is more similar to the new

construction standard than to the general industry standard.

Training

Paragraph (k)(8) covers training. It expands the training provisions of the current standard considerably. One, training must be given to virtually all employees who are actively exposed to asbestos, i.e. whose exposure is the result of performing Class I through IV work, or who install new asbestos products. Under the unrevised standard, training was triggered by exposure above the action level, i.e. 0.1 f/cc, the new PEL. As discussed above, OSHA has determined that there is a still significant risk at this level. Further, the Agency's experience in enforcing its health and safety standards, along with testimony, comment, and data in this record clearly establish that training of employees is a vital component of any successful program to control exposures to asbestos and other toxic substances. Participants agreed (see e.g., testimony of Dr. Sawyer at Tr. 2164 ". . . (T)rain the worker. I think is the most important factor.") There was substantial record support to expand training. Among those who advocated additional OSHA training requirements were: P. Heffernan of Kaselaan and D'Angelo (Ex. 7–36), K. Churchill of California Association of Asbestos Professionals (Ex. 7–95), D. Kirby of Oak Ridge National Lab (Ex. 77–111), E. Krause of the United Union of Roofers, Waterproofers (Ex. 7–115), G. Lofton of Heat and Frost Insulators and Asbestos Workers Union (Ex. 7–118), P. Curran of North Carolina State Department of Environment, Health, and Natural Resources (Ex. 7–118), W. Dundulis of the State of Rhode Island Department of Health (Ex. 7–124), BCTD (Ex. 119), American Federation of State, County and Municipal Employees (Ex. 141), Service Employees International Unions, AFL-CIO (Ex. 144), National Institute for Occupational Safety and Health (Tr. 230).

Participants supported training all employees who handle asbestos, rather than waiting for significant exposures to trigger it [see e.g., testimony of D. Kirby, Oak Ridge National Laboratory, "You need to have awareness training of . . . custodial and maintenance" people, (Tr 122); and, R. Lemen, NIOSH, who supported ". . . approved training courses for all workers who are routinely handling asbestos containing material, (Tr. 231)]."

The second major expansion of training requirements covers curriculum method and length of training. Before, in the 1986 standard, OSHA merely required that certain topics be covered in the training program.

Subsequently, as OSHA noted in its proposal, and participants noted in their comments, EPA's training requirements under the Asbestos Hazard Response Act (AHERA) become the standard for the asbestos abatement industry. Under AHERA, at the time of the proposal:

> . . . Inspectors must take a 3-day training course; management planners must take the inspection course plus an additional 2 days devoted to management planning; and abatement project designers are required to have at least 3 days of training. In addition, asbestos abatement contractors and supervisors must take a 4-day training course and asbestos abatement workers are required to take a 3-day training course. For all disciplines, persons seeking accreditation must also pass an examination and participate in annual re-training courses. A complete description of accreditation requirements can be found in the Model Accreditation Plan at 40 CFR part 763, subpart E, appendix C.I.1.A. through E. (54 Fr, November 29, 1989 at 49190).

More recently, EPA has published an interim rule updating its Model Accreditation Plan (MAP) (59 FR 5236–5260, February 3, 1994) pursuant to the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). Under the revisions, the length of certain courses has increased, i.e. asbestos abatement workers now must take a 4-day, rather than a 3-day course. Additionally, the entire MAP now applies to work in "public and commercial buildings as well as in schools," and requires more "hands-on" training. For example, for abatement workers 14 hours of hands-on training must be included in the 4-day training course.

The training provisions in the new standard correspond to the class of work performed. For Class I and II work, employers must provide employees with a training course which is the equivalent in curriculum, training method and length to the EPA MAP worker training described above. Keying OSHA required training to the AHERA program was supported by many participants; in many sections of the country, most training is now done using AHERA accreditation as the standard for quality, (see e.g., testimony of Daniel Swartzman, School of Public Health, Univ. of Ill, Tr. at 486. et seq.). and because AHERA training as noted above, is the recognized standard for quality in asbestos work (see. must be trained in the proposal, OSHA asked for comment on whether OSHA should provide model curricula and certification for training, and on whether and how OSHA training requirements should be reconciled with those of EPA (55 FR 29726–28).

Much debate on these issues occurred in this rulemaking. Some, most prominently, BCTD, (Ex. 143 at 220 et seq, see also Tr. 483; Tr. 1142, Tr. 3547) stated that OSHA should develop model curricula and certify training courses for asbestos workers. Reasons for this were given as: OSHA's earlier training requirements are inadequate; that "Ahera has proved successful, but needs improvement," and that AHERA should be improved by more "hands-on" training and testing and longer training (see Ex. 143 at 232).

The Agency notes that participants agreeing and disagreeing with the need for OSHA certification of trainers and courses agreed with BCTD's reasons. For example, R. Chadwick the President of Local Union 22 of the International Association of Heat and Frost Insulators and Asbestos Workers, in a letter to OSHA stated that since OSHA stipulated no specific minimum period of training, "Most abatement contractors show a 2-hour film and classify the workers being trained" (Ex. 1–175). OSHA agreed with the above comment that its 1986 training requirements fairly can be considered "bare-bones."

Although BCTD argued that the AHERA model needed improvement, BCTD acknowledged its success in improving worksite conditions (see Ex. 143 at 240, citing Ex. 7–52). EPA itself has improved its training program. As noted above, it recently issued improved model curricula, increasing the training requirements. In particular, the new MAP contains specific "hands-on" training requirements in each major course, including those of workers and supervisors (59 FR 5236–60, February 3, 1994). EPA also increased the number of training hours and now requires 4-day training of workers, and 5-day training of supervisors. Other disciplines of the AHERA program also have increased training requirements.

OSHA has reviewed recommendations carefully and has concluded that requiring OSHA to certify training courses and trainers would consume a disproportionate share of OSHA's resources. Further. establishing another system for certifying asbestos trainers and workers when another agency has a similar program in place would be duplicative of effort as well. OSHA's concerns regarding duplication of effort is also addressed in this preamble in the section on the notification of OSHA vis-a-vis that of EPA under NESHAP.

In addition, other entities have already developed more stringent curricula than those under AHERA. The

HEI Report noted that under AHERA each state develops "training and certification programs for inspectors, management planner, asbestos abatement workers and supervisors that were at least as stringent as the AHERA model" (Ex. 1–344, p. 5–51). It further found that a "number of states have developed other requirements that exceeded the AHERA requirement" and that "* * * in some states AHERA certification are required for any asbestos-related work"—not just for schools.

Paragraphs (k)(8)(i)-(v) cover curricula and length of course requirement. They allow flexibility in the new training provisions. Courses equivalent to those of AHERA (ASHARA) may be substituted, but must be equivalent in curriculum, training method, and length to that of the EPA plan. Thus, employers who in-house training program meets these requirements does not need send all workers off-site for the required training. Several commentaries objected to requiring that all training take place in EPA or state approved training centers, most also praised job-specific training as superior (e.g., Ex. 7–21, 7–39, 7–50, 7–99, 7–100, 7–102, 7–103, 7–108, 7–150).

Training Requirements for Employees Performing Class III and IV Work:

In these standards OSHA does not define the term "custodian" nor do the requirements differ based on the job title. OSHA agrees that in some facilities there is a clear distinction between custodial workers who as a participant noted, "may only * * * strip or buff floor tile or replace light bulbs in fixtures located below ACM" and maintenance workers "who * * * work on building materials or systems that contain asbestos". (ICSC, Ex. 162–58 at 10). Relying on job title, however, to assign duties is inexact and potentially non-protective. Rather in these standards, the nature of the operations performed by that worker determine the level of training required, regardless of job title; janitor, custodian, or maintenance worker. Those who perform only Class IV work must receive at least 2 hours of awareness training, and those who do Class III work must be given 16 hours of training equivalent in content and length to the 16 hour operations and maintenance course developed by EPA (see 40 CFR 763.92(a)(2).

Workers performing these activities may be employees of the building owners or other employers such as outside housekeeping contractors, or trade contractors such as plumbing, electrical, or air conditioning contractors. They must be trained to use appropriate measures to avoid exposure to airborne asbestos.

OSHA in the November 3, 1992 notice, stated that it was considering a training requirement modelled after that of the awareness training required by EPA in its AHERA rule. OSHA further noted that in its training requirements under AHERA, EPA distinguishes between the duties and training of custodial workers and the additional duties and training needs of maintenance and service workers (40 CFR Parts 763). OSHA, too, believes that building/facility workers, who frequently disturb asbestos containing material need more extensive training.

Many who commented during the supplemental comment period agreed that OSHA should use AHERA as a general model for drafting training requirements for building/facility workers (e.g., Ex. 162–13, 162–15, 162–16, 162–18, 162–24, 162–27, 162–30, 162–35, 162–42, 162–44, 162–45,162–46). Others, felt the existing OSHA training requirements were adequate (e.g., Ex. 162–4, 162–22). Some objected to OSHA specifying a time period in its training requirements (Ex. 162–4, 162–12, 162–17, 162–25, 162–50, 162–55, 162–57). BCTD argued that AHERA training was inadequate for OSHA's purposes, and that any employee in a building containing either ACM or PACM who does not intentionally handle the material should receive at least 4 hours of awareness training and that any worker who disturbs ACM during repair, renovation, demolition or maintenance work needs the full 5-day training course (Ex. 162–42).

Under the training provisions of AHERA, all members of the maintenance and custodial staffs (of schools) who may work in a building containing ACBM are required to receive at least 2 hours of "awareness" training whether or not they are required to work with it (40 CFR 763.92). Those who conduct an activity which will result in disturbance of ACBM shall receive both the awareness training and 14 additional hours of training.

EPA set as a minimum that the awareness training cover:

—information of uses and forms of asbestos in buildings;
—information on health effects of exposure to asbestos;
—location of ACBM in building where employee works;
—recognition of deteriorating or damaged ACBM; and,
—the identity of person responsible for management of ACBM.

While the more extensive training needed by those who might disturb ACM include in addition:

—description of proper methods to handle ACBM;
—information on respirator protection
—the provisions of the AHERA rule; and,
—hands-on training on the use of protective equipment and work practices

Information in this rulemaking discussed above shows that workers who have performed work now designated Class III and IV have developed asbestos-related disease. Because as noted above, training is one of the most powerful instruments to protect workers, OSHA believes that its former training provisions must be improved by incorporating additional curricula such as covered in the AHERA courses for such workers. Imposing time criteria for courses will help insure that sufficient time for instruction is provided. More time can always be allotted, as needed.

(12) Housekeeping

Paragraph (k) General Industry Standard. Paragraph (l) Construction and Shipyard Employment Standards:

Housekeeping practices have been shown to be effective means of reducing employee exposure to asbestos. OSHA is specifying that the now required cleaning of floors and surfaces on which dust containing asbestos can accumulate be performed at least once per shift in primary and secondary manufacturing. In addition to the current requirement that a vacuum containing a HEPA-filter must be used, where feasible, wet methods must also be used for clean-up. Once asbestos dust is entrained, it can accumulate on surfaces leading to potentially substantial levels of exposure. Routine removal of dust can greatly reduce these accumulations and the risks that they pose.

There was little over-all objection to this provision from the participants in the rulemaking process. However, the Asbestos Information Association asked that OSHA not revise the current housekeeping requirements which specify that all surfaces be maintained as free as practicable of accumulation of dusts and wastes containing asbestos (Ex. 142, p. 7). They argue that if OSHA requires once per shift vacuuming, it would lead to less effective housekeeping efforts since vacuuming might then occur at a later time in the areas most in need of housekeeping than occurs with current cleanup whenever a fiber accumulation occurs." OSHA is unconvinced by this argument. If the employer believes that more frequent cleanup is needed, it should be performed. The standard merely

requires that vacuuming be done no less often than once per shift. The employer can determine when during a shift, vacuuming is most useful and perform it then.

Flooring Maintenance Requirements

There are now a new §§ 1926.1101 (g)(2)(iv) and 1910.1001(f)(1)(xi), which prohibit the sanding of floor tiles containing asbestos. Further, only low abrasion pads may be used at speeds lower than 300 rpm in "stripping" operations, and stripping of unwaxed or unfinished floor tile containing asbestos is prohibited. OSHA believes that without such restrictions this type of mechanized activity may result in the release of significant levels of asbestos fibers into the air. In addition, the new provisions allow asbestos-containing floors to be mechanically buffed without limitation on the speed of the buffing machine, so long as the floor has sufficient finish to preclude contact between the pad and the asbestos-containing material. In most cases, at least 3 layers of wax will provide that margin. If the manufacturer's instructions specify a thicker wax layer, those instructions must be followed. (See testimony of J. Harless of Pioneer Eclipse, ISSA).

These requirements are changed in some respects from the July, 1990 proposal, which would have further restricted stripping and burnishing activities. The prohibition concerning "sanding" of asbestos-containing floors was supported by ISSA and others, and it unchanged from the proposal. (See Ex. 136D). The changes from the proposal reflect the comments and data submitted to the record. The data show that now permitted activities are not expected to result in the release of significant asbestos contamination. In addition, since OSHA's proposal had used various terms relating to floor care imprecisely, the final provisions conform the language to the common understandings of the floor care industry. Thus, "stripping" is defined as a wet process to remove the floor polish or finish using chemical strippers, or abrasive pads. (See Ex. 136D, ISSA's comments). "Burnishing" is dry buffing of floor polish by a high-speed rotary disc machine or otherwise.

The core requirements of OSHA's new provisions are that no "sanding", i.e. the abrading of asbestos-containing material to even out the surface, is allowed: that "stripping" of finishes of asbestos-containing flooring must be conducted wet using the least abrasive pad possible; and that burnishing may be performed only on floors which have sufficient finish so that the pad does not contact the unfinished asbestos-containing material. OSHA believes that these three principles of asbestos-containing floor maintenance are sufficiently clear and flexible to apply to all kinds of floor maintenance activities, even if the activity is described using different terminology.

OSHA is basing these provisions primarily on the results of studies submitted during the rulemaking. Thus, in the most thorough and detailed study submitted to date on this topic, BCTD furnished a copy of a study by T. Marxhausen and S. Shaffer entitled "Vinyl Asbestos Tile: A study of airborne asbestos concentrations during routine floor maintenance activities." (Ex. 119X) In this study both TEM and PCM measurements were made during several operations. The results are briefly summarized in Table VIII.

TABLE VIII. ASBESTOS FIBER LEVELS DURING FLOOR MAINTENANCE ACTIVITIES

[Ex. 119K]

Location	TEM s/cc	PCM f/cc
Room F1 during low speed with red pad	0.069	0.0215
Room F2 during high speed scrub with white pad	.533	.016
Room F2 during stripping with black pad	1.450	.0045
Room F1 during stripping with black pad	1.153	.007
Room F1 during high speed burnishing with white pad (after finish build-up)	.069	[1]
Room F2 during high speed scrub with white pad	.533	.016
Room F2 during high speed scrub with white pad (after finish build-up)	.111	[1]
Room F1 during high speed scrub with white pad (after finish build-up)	.130	.034

[1] Not available.

The authors found that approximately 97% of the asbestos structures observed during all analyses were less than 5 microns in length (and would therefore not be seen by PCM). They concluded that "Concentrations were low during low speed scrubs and burnishing of freshly built-up, new floor finishes. High speed scrub results were highest on the worn floor but dropped to approximately one-fifth this level on freshly built-up surfaces." The authors noted that although high speed scrubs and burnishing operations used the same machine and pad, the fiber levels observed in high speed scrub operations were higher than during burnishing. They hypothesized that this had been due to condition of the floor tested or that "the limited amount of cleaning solution causes the higher values observed during high speed scrubbing operations." They expressed serious concern about the elevated TEM measurements during some of these operations and called for more extensive study.

S. Wong, Director of Environmental Health and Safety Branch of the Los Angeles Unified School District submitted a report of a study in which fiber levels were measured by TEM during various floor maintenance activities (Ex. 7–11). Using a pass-fail criterion of 5 samples less than or equal to 70 structures per square millimeter (the AHERA clearance level), she found that 5 of 7 stripping pads failed. She also found that use of a brush with a rotary powered scrubbing machine passed and that various stripping solution used in conjunction with the brush also passed. Repeated use of a pad which initially passed, continued to do so. In a final test using one of the stripping solutions and 7 other brushes, all failed. However, neither the OSHA PEL nor action level was exceeded. The report concluded with several recommendations: (1) all VAT floor maintenance using powered equipment be performed using wet methods exclusively; (2) that use of aggressive pads results in release of fibers from previously applied wax (They found 5% fibers in the old wax scraped from baseboards.) and their use should be discontinued; (3) schools continue to use only the off-white or pink pad which passed for buffing; (4) recommends discontinuance of use of power equipment to strip wax from floors unless they do not contain asbestos; and, (5) alter maintenance program to perform frequent damp mopping and less frequent stripping.

Both studies cited above were conducted after the A.F. Meyer study discussed in the proposal, which was conducted in October 1989, and which showed slightly elevated asbestos levels after routine buffing (with standard red buffing pad and standard buffing solution) and stripping. No levels, however, exceeded OSHA's proposed PELs. Two methods were used for stripping: (1) standard stripping mixture mopped on and standard black stripping pad, and (2) mist spray of stripper solution and standard black stripping pad. As noted in the proposal, the stripping conducted using a mist spray of stripping solution and the more

abrasive pad resulted in significantly higher asbestos fiber airborne concentrations than the first method.

On January 25, 1990, in response to the A.F. Meyer study, EPA published a "Recommended Interim Guidance for Maintenance of Asbestos-Containing Floor Coverings," (Ex. 1–108) outlining its analysis of the Meyer's findings. The Agency concluded that, although there was "no clear evidence" that "routine" stripping significantly elevated levels of asbestos fibers, it observed that higher levels did occur after a stripping machine was used on a relatively dry, unwaxed floor.

Work practices recommended by EPA in the same guidance memo emphasize the same precautions contained in OSHA's final standards: viz. that the least abrasive pad be used for stripping, and that low speed equipment be used for stripping of floors.

OSHA notes that ACCSH's recommendations for work practices in floor maintenance also echo the themes of wet stripping, using the least abrasive pad for stripping, limiting the speed of the machine and prohibiting floor sanding, which are the core requirements in this standard. (Ex. 1–126).

In a change from the proposal, OSHA is permitting high speed buffing of finished floors containing asbestos material. A number of participants pointed out to OSHA that buffing, although performed at high speed, is done on 3 to 5 layers of wax, unlike sanding, and that the wax, not the tile, is polished in this process. (Ex. 7–19, 7–80, 7–84, 7–90, 7–100, 7–107, 7–123, 7–142, 7–188, 125D, 147 and Tr. at 3599). Michael B. Wheeler Chief Executive Officer of Essential Industries Inc., stated that:

> Stripping is expensive, labor and material-intensive, and, in the context of vinyl asbestos tile something we wish to keep to a minimum. Ultra high speed maintenance techniques allow workers in heavy trafficked stores to strip their finished floors every 10–18 months as compared to every 2–3 months using older low speed techniques. (Ex. 7–188).

He went on to explain that these high speed techniques also reduce the labor requirements by at least half. He cited studies using low speed spray buffing techniques on finished VAT which yielded fiber levels ranging from 0.015 to 0.025 f/cc and quoted the WRC-TV report that "just buffing an already waxed floor does not throw up any asbestos from the asbestos tile." In addition, ISSA described additional floor maintenance procedures which increase the glossiness of the floor—spray buffing (done at 175–300 rpm) and burnishing (done at 300–2,000 rpm). ISSA stated that if there is finish on the floor surface, these procedures do not generate unsafe levels of fibers because they do not contact the floor itself. They oppose OSHA's proposed changes prohibiting speeds of more than 190 rpm in floor machines, particularly due to increased costs in time and money. (Ex. 136D).

Based on this record, OSHA believes that employees who burnish and/or buff floors using high speed floor machines will be exposed to minimal asbestos fiber concentrations if the floor machines are used to polish finished or polished floors, and if the pad does not contact the unpolished floor. Industry also claims that the use of high speed buffing will increase the intervals where stripping is required, and thus, may reduce risk to employees who perform floor maintenance, but OSHA is not relying on this speculative benefit.

(13) Medical Surveillance

Paragraph (l) General Industry Standard. Paragraph (m) Construction and Shipyard Employment Standards.

No changes were made to this section. The medical surveillance provisions in the 1986 construction standard are now also included in the shipyard employment standard.

(14) Recordkeeping

Paragraph (m) General Industry Standard. Paragraph (n) Construction and Shipyard Employment Standards. The recordkeeping provisions now include provisions (n)(5) and (n)(6) which require maintenance of data used to rebut the presumption that a contains asbestos, i.e., the building owner/employer who relies on data to demonstrate that PACM is not asbestos-containing must maintain the data upon which he relied for as long as they are used to rebut the presumption. In addition, where the building owner has received or provided information concerning the location, amount and identify of ACM and PACM, he must maintain written records of them and their content for the duration of ownership and must transfer them to successive owners.

(15) Competent Person

Paragraph (o) Construction and Shipyard Employment Standards.

OSHA is adopting as final provisions most of the proposed changes to the 1986 construction standard's requirements concerning the designation of a "competent person" on certain construction worksites. The term "competent person" is derived from the generic construction standard's provisions. Under these, employers must designate a "competent person" on all construction worksites to conduct "frequent and regular inspections of the job sites, materials, and equipment" as part of required safety and health programs (§ 1926.20). At the suggestion of SESAC, OSHA has designated that the person who performs the shipyard duties analogous to the competent person in the construction standard will be termed a "qualified person." For the purposes of the present discussion these terms are equivalent and will be discussed as "competent person." The 1986 asbestos construction standard appeared to limit this requirement. "Competent person" supervision was required only at removal, demolition, and renovation operations which were not "small-scale, short-duration," but under the asbestos standard, the competent person was to be specially trained in asbestos hazards, and perform various duties mainly involving the setting up and control of the NPE, and the supervision of workers within the enclosure (formerly 1926.58(e)(6)(ii)).

The Court of Appeals, agreeing with BCTD, instructed OSHA to either expand the "competent person" requirement or explain more persuasively why it refused to do so. OSHA agrees that for all construction work involving asbestos exposure under this standard, a "competent person" who is specially trained in asbestos related work conditions, should either be available to employees or be present on the work site. Like other provisions in this standard, the more risky asbestos work deserves a more protective provision; so employees performing Class I and II work will have the benefit of a "competent person" on the worksite, to the extent necessary to perform his duties as set out in paragraph (o). Employees performing Class III and IV work, will be entitled to access to a "competent person" as needed.

Two issues regarding the "competent person" were discussed during the rulemaking. One was the training required; and two, whether or not the competent person needs to be present throughout the operation.

As to the second issue, the standard requires in paragraph (o) (2) and (3), that the competent person must perform the "frequent and regular inspections of the job sites, material and equipment" to accomplish "health and safety programs," which are otherwise required by the general construction provision in § 1926.20(b)(2). Although no elaboration of this provision is provided, OSHA intends that in all work covered by this standard,

including Class IV work and work not included in a "Class," a competent person insures, by inspecting the worksite, that workers exposed to asbestos are protected by the relevant provisions of this standard, and that they are informed pursuant to paragraph (k) of this standard about the presence and location of ACM and PACM. Additionally, paragraph (o)(3) requires that in Class I operations the "competent person" must make on-site inspections at least once during the workshift and any time at employee request. In addition, the list of specific duties of the "competent person" in paragraph (o)(3)(i) for Class I and II work includes specific language requiring the required supervision of various controls and work practices to be made through "on-site inspection."

The record supports the need for on-site supervision of setting up of controls. Chip D'Angelo, when asked what were his major concern about glove bags, testified that "Just the act of attaching * * * concerns us * * * a lot of times the material is so overly dry and very loose * * * simply attaching the bag can create some problems * * * Removing the bag, if not done properly and evacuated properly and twisted properly, actually expels fibers out into the air" (Tr. 3126). For example, he/she must be present when a glove bag is attached and determine that a smoke test is passed and again be present when the bag is removed. It is not necessary that the competent person continually watch the operation, rather that he oversees its proper completion. OSHA has not specified the ratio of on-site supervisors to abatement workers. Mr. Booher of Exxon Company, testified that "if you have three glove bag operations going on next to one another, in close proximity to one another, that one competent person can handle up to three jobs effectively" (Tr. 2677). The Agency believes that various operations need closer supervision than others; the exposure assessment should clarify how close supervision needs to be. So long as the specific activities in the standard requiring inspection are covered, the extent of the required inspections are up to the judgment of the "competent person."

Training for the competent person is the same for those who supervise Class I and II asbestos work under the standard. The training must be obtained in a course which is the equivalent of the EPA supervisor course. Unlike the training requirements for workers for Class II jobs which may concentrate on a particular kind of material if that is the only asbestos work which an employee does, the "competent person" supervising Class II jobs must be trained comprehensively in all aspects of asbestos related construction work. Thus, for example, a flooring removal supervisor must be informed about all asbestos removal control methods: this is the person who must evaluate a prospective job to assure that the PELs will not be exceeded, who must choose among available controls to reduce exposures, and must know how to supervise extensive control systems if they are needed for high exposure Class II work.

The training requirements of persons supervising Class III work are different. Most Class III work is maintaining or renovating building components. Supervisors of such work need not be trained in methods of abating asbestos material on a large scale. The EPA asbestos in schools rules, now updated to encompass commercial and public buildings requires that maintenance workers in asbestos-containing buildings be trained in a 16-hour course which includes; proper asbestos-related work practices, waste handling and disposal, respirator use, decontamination procedures, and the content of applicable Federal, state and local asbestos regulations. All Class III workers and their supervisors must take such a course, which covers all control measures required for Class III work. In this regard OSHA notes comments which stated that training supervisors of plumbers, pipefitters, and sheet metal workers, who are engaged in projects of incidental removal that are small scale and short term, in full enclosure techniques is wasteful (see e.g. Ex. 7–151, 152, 153).

Although the formal training for supervisors and workers in Class III work is the same, additional criteria for "competency" contained in the general construction standard distinguish worker and supervisor on all asbestos jobs, including Class III.

Thus, the "competent person" must be "capable of identifying existing and predictable hazards * * * which are * * * hazardous to employees, and (have) authorization to take prompt corrective measures to eliminate them" (29 CFR 1926.32(f)). Also, the "competent person" must be designated by the employer (29 CFR 1926.20(b)(2)). OSHA notes that the "competency" of the competent person is independent of the training required. "Competency" as well as training is required. Thus, a "competent person" is not merely someone with a specified level of training but connotes a high level of knowledge of worksite safety and health issues as well.

The need for a high degree of expertise for Class III work was acknowledged by labor representatives. (See ACCSH reference in the proposal at 55 FR 29727, and R. Gobbell's testimony (Tr. 4318). Employer representatives questioned the need for this uniform training requirements for competent persons supervising all asbestos work, but also acknowledged that supervisors of maintenance projects needed training in the control methods required (See e.g.Ex. 7–151, 7–152, 153); others stated that in-house training was often superior to EPA's (see e.g. Amoco Corporation, Ex. 7–37); and that trained competent persons should be allowed to train other workers (Gulf Power Company, Ex. 7–50). OSHA is allowing in-house training so long as it meets the criteria for curriculum, length, and method of training contained in the standard.

Training for "competent persons" for Class IV work depends on when that work is performed. When Class IV workers perform their duties in facilities and buildings where no other asbestos work is taking place, the "competent person" supervising them must be trained in an EPA accredited course on operations and maintenance workers or its equivalent, much as for Class III work. If clean-up work is done within a regulated area, supervision of the clean-up must be conducted by the "competent person" who is supervising the asbestos job for which the area was established, which in most cases will be Class I and II work.

A number of participants in the rulemaking, primarily representing industry interests, objected to the proposed requirement for a competent person specifically trained in an EPA-approved course to oversee workers performing small-scale, short duration asbestos jobs. These included: J. Bavan of Michigan Consumers Power (Ex 7–21), Mr. Quanstrom of Amoco Corporation who felt in-house training was often superior to EPA's (Ex. 7–37), and others contain virtually identical comments in which the plumbing contractors state their support.

Based on the record evidence, OSHA concludes that its expansion of the competent person requirements and additional requirements for training are appropriate.

Shipyard Employment Standard

SESAC agreed that asbestos operations should be overseen by personnel who have the qualifications to ensure that asbestos operations are performed safely; however, they noted in their submission (Ex. 7–77) that in existing OSHA shipyard standards, the

term competent person(s) has been used to refer to a person who is uniquely qualified to perform entry tests preparatory to entering enclosed and confined spaces and felt that the use of this term as employed in the asbestos standard would cause confusion. They suggested that the competent person be called a "qualified" person in the shipyard standard. OSHA does not object to this substitution of terms, but notes that all requirements for competent/qualified person(s) are to be equivalent.

SESAC also pointed to a process which may be the general case in large operations, in which the duties of the shipyard qualified person are shared or divided between two or more persons. That is, in some of the larger companies represented on the committee, a training department (not a person) is responsible for ensuring that employees are trained and another department is responsible for setting up the regulated area, while an industrial hygiene department conducts all monitoring. SESAC recommended that this be specifically allowed. OSHA feels that the current regulatory language permits utilizing this organization of responsibilities and agrees with the suggestion that it is appropriate for shipyards.

(p) Dates

The amendments to the General Industry and Construction Standards and the new Shipyard Employment Standard become effective 60 days after date of publication in the **Federal Register**. All existing provisions remain in effect (including coverage of Shipyards by the General Industry Standard) until the new provision's start-up dates. Various start-up dates are set forth in the standards. Where there is no start-up date for a provision, the start-up date is the effective date. If any new or amended provision is stayed by OSHA or a court or vacated by a court, the pre-existing provision becomes binding again.

Appendices

Appendices A, C, D, E, and F of the General Industry Standard are binding. Appendices A, C, D, and E of the Construction Standard are binding. Appendices A, C, D, E, J, and L are binding in the Shipyard Employment Standard. Appendices B, H, I, and J of the General Industry Standard are not binding. Appendices B, F, H, I, and K of the Construction Standard are not binding. Appendices B, F, H, I, and K of the Shipyard Employment Standard are not binding. They are intended neither to add to or detract from binding requirements.

Shipyard Employment Standard. With respect to the appendices to the standard, SESAC recommended inclusion of the appendix dealing with work practices and engineering controls for automotive brake and clutch repair and assembly in the shipyard standard. OSHA agrees that this appendix is appropriate to the shipyard employment standard, since these activities occur within shipyards and has included this as appendix L in the shipyard employment standard. OSHA further notes that this appendix has been amended subsequent to consideration by SESAC, and therefore differs from the alternate regulatory language suggested by the committee. For example, the Agency no longer considers the solvent spray can a preferred method for controlling asbestos contamination and will not include it in either standard.

Appendix A

All changes indicated in this document are to be made to Appendix A of the asbestos standards and all changes are the same for 1910.1001, 1915.1001, and 1926.1101.

In the explanatory paragraph at the beginning of Appendix A phrase:

"(such as the NIOSH 7400 Method)" is replaced with:

"(such as Appendix B of this regulation, the most current version of the OSHA method ID–160, or the most current version of the NIOSH Method 7400)."

This change is made to assure that the analytical methodologies followed are the most current and reliable available. Appendix B of this standard has been updated and is the most current version of OSHA ID–160. This method was written to adhere to the language of Appendix A so that there would be no confusion about the limits of the sampling and analytical parameters such as flow rates. So long as parameters consistent with Appendix A are used, there will be no analytical differences between ID–160 and NIOSH 7400 methods.

Sampling and Analytical Procedure paragraph 2:

The following sentence is added to the end of the paragraph:

"Do not reuse or reload cassettes for asbestos sample collection."

The practice of reusing cassettes can result in lower estimates of employee exposure. Adequate cleaning of the cassettes cannot be assured. Fibers from the cassette may become dislodged and be collected on the filter during subsequent sampling. Employee exposure assessments are often assessed based on a small number of fibers. This is because it is not possible in every work place to use single cassettes for an entire work shift due to excess dust in the air. This is significant for occupational exposures, because the background fiber concentration must be subtracted from the compliance sample. If fugitive fibers from used cassettes were deposited on the blank filter, the background estimate would be artificially high and the employee exposure will be underestimated when the background concentration is subtracted as required. Elimination of the practice of reusing cassettes will eliminate this source of error, thereby better assessing employee exposure. A requirement that cassette reuse not be allowed is added to the end of paragraph 2 of Appendix A.

Paragraph 11 is revised as follows:

11. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

The original wording of the standard was inadequate to apply meaningfully to certain sampling practices, such as continuous sampling. This change establishes that the blanks are to be field blanks. This wording also establishes when blanks are to be taken. The specific practice to be followed for blank correction is outlined in Appendix B, the detailed analytical method. Each time an evaluation of work place exposure is made for the purposes of this standard, the samples used in that evaluation must be represented by valid blanks taken in the work space where the compliance samples were taken.

The following changes apply to the Quality Control Section.

Paragraph 2 is renumbered 2(a). Since the standard was promulgated, the lack of a specific requirement to participate the Program for Analytical Testing (PAT) has led to confusion with the requirement that laboratories participate in a round robin using samples taken from real world samples.

A second paragraph is added directly following 2(a) and is denoted 2(b).

2(b) All laboratories should participate in a national sample testing scheme such as the Proficiency Analytical Testing Program (PAT), the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

This is a requirement of OSHA method ID–160 and NIOSH 7400. This requirement was originally left out of the standard because of the uncertain status of the PAT program at the time of promulgation of the standard. Inclusion at this time is to make it clear that the required participation in a round robin indicated in paragraph 2(a) is not satisfied by participation in the PAT program. Such participation is however, highly desirable and may be required for private accreditation.

Since the original promulgation of the asbestos standards, there have been several improvements and refinements to the analytical procedure. Two major analytical methods reflect these changes and continue to be updated as necessary. The changes are mostly procedural, providing safer analysis and clearer descriptions of the procedures that are to be carried out. As a result, Appendix A and Appendix B have been updated to reflect the most recent refinements.

Changes to the mandatory asbestos method Appendix A are intended to clarify some of the requirements of the method. Wording has been inserted to indicate what methods are acceptable. A definition of what constitutes a "set" of asbestos samples was added to more clearly define when blank samples are to be taken and to reinforce that they are to be field samples.

Paragraph 11 is amended to clarify what a set of samples is and when it is necessary to take blank samples.

An early draft version of NIOSH method 7400 was used for the model of Appendix B. There were several problems with the method including the potentially dangerous practice of boiling acetone. This appendix has been replaced entirely with the most current version of OSHA method ID–160 Asbestos in Air. The OSHA ID–160 give the same results as NIOSH 7400 when used within the sampling constraints imposed by Appendix A, notably the flow rate limits of between 0.5 and 5 liters per minute for the 25 mm cassette and 1 to 5 for the 37 mm cassette. The counting rules are functionally the same for both methods. Use of Appendix B, OSHA ID–160 or NIOSH method 7400 when used within the constraints of Appendix A are all acceptable and equivalent. Appendix B is the same as OSHA method ID–160 on the date of publication of these changes. It, like NIOSH method 7400, is subject to change when such changes will result in better methodology.

As the PEL has been lowered to 0.1 fiber/cc, there is an increased concern about sample overloading as voiced by several commentors such as the American Industrial Hygiene Association (AIHA). Such overloading is the presence of non-asbestos dust on the surface of the filter obscuring the filter surface. Such dust has been shown to decrease the number of fibers counted even before the surface is fully obscured. Some employers have taken samples in such a way that there are no representative samples for the work being performed because all of the filters have been obscured by excess dust. The intention of Appendix A is to provide for the most precise measurement possible while allowing for the fact that many work places have an exceeding amount of non-asbestos dust. Appendix A suggests that a sample be collected such that there are a minimum of 100 fibers/mm^2. In many work places this is not possible. It is preferable to collect a sample that can be used to estimate the asbestos concentration even if it is with a higher than ideal error level than it is to collect a large volume and completely obscure the filter rendering the sample useless.

An acceptable weight of dust on the filter is highly dependent on the average particle size of the dust. Very small particles such as those from diesel exhaust will quickly obscure the filter with very little weight (much less than 1 mg on the filter). On the other hand, large particles may load the weight up beyond several milligrams with little loss in fiber count. For 5 micrometer diameter particles with a density of 3, 25% of the filter area will be obscured with a total weight on the filter of 1mg. Increasing the average diameter of the particles to 10 micrometers will double the allowable weight to 2mg. It is very important for the person conducting sampling to be careful about the dust levels in the air. It is acceptable to take a series of samples to model the work place air when serial sampling will result in samples that can be used. Serial sampling has the additional benefit that higher asbestos concentrations can be measured by reducing the volume of air drawn through each filter.

Appendix G

OSHA is removing appendix G from the construction standard. The rulemaking proceeding and the Agency's experience enforcing the unrevised standard showed that this "non-mandatory" appendix was unclear and that portions of it belonged in the regulatory text. Former appendix G covered controls for all four classes of asbestos work. Therefore, OSHA has extracted the main provisions covering various controls and practices required for each class and placed them as discussed in the regulatory text applying to each operation covered.

OSHA knows that some employers would like additional guidance on specifications for required work practices and controls. The EPA "Greenbook," (Ex. 1–183), NIBS Guidance Manual (Ex. 1–371) and other sources of specific work practices are available.

Appendix J

OSHA method ID–191 for bulk asbestos analysis has been included as Appendix J, to provide a suggested uniform method for the identification of asbestos. This method uses polarized light optics on a phase contrast microscope. Using this methodology, fibers visible in phase contrast illumination can be viewed to assess whether there might be potential for asbestos exposure from a material which can be measured by a phase contrast counting method. This method also contains the criteria used by OSHA to differentiate between asbestiform and non-habit of minerals. The text of the method is informational and explains its limitations and proper use.

Environmental Assessment; Findings of No Significant Impact

OSHA has reviewed the environmental impact in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.), the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Part 1500), and OSHA's NEPA compliance procedures (29 CFR Part 11).

As a result of this review, OSHA has determined that these regulations will have no impact on air, water or soil quality, plant or animal life, or the use of land or aspects of the external environment. Therefore, OSHA concludes there will be no significant impact on the general quality of the human environment outside the workplace, particularly in terms of ambient air quality, water quality, or solid waste disposal. No comments made at the public hearing or submitted to the record contradict this conclusion.

State Plan Requirements

The 25 States and territories with their own OSHA-approved occupational safety and health plans must revise their existing standards within six months of the publication date of the final standards or show OSHA why there is no need for action, e.g., because existing state standards are already "at least as effective" as the new Federal standards. These States are: California, Connecticut (State and local government workers

only), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan Minnesota, Nevada, New Mexico, New York (State and local government workers only), North Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington and Wyoming. Until such time as a State standard is promulgated, Federal OSHA will provide interim enforcement assistance, as appropriate.

Federalism

The standard has been reviewed in accordance with Executive Order 12866 (52 FR 41685; October 30, 1987) regarding Federalism. This Order requires that agencies, to the extent possible, refrain from limiting State policy options, consult with States prior to taking any actions that would restrict State policy options, and take such actions only when there is clear constitutional authority and the presence of a problem of national scope. The Order provides for preemption of State law only if there is a clear constitutional authority and the presence of a problem of national scope. Additionally, the Order provides for preemption of State law only if there is a clear Congressional intent for the agency to do so. Any such preemption is to be limited to the extent possible.

Section 18 of the Occupational Safety and Health Act (OSH Act), expresses Congress' clear intent to preempt State laws relating to issues with respect to which Federal OSHA has promulgated occupational safety or health standards. Under the OSH Act a State can avoid preemption only if it submits, and obtains Federal approval of, a plan for the development of such standards and their enforcement. Occupational safety and health standards developed by such Plan-States must, among other things, be at least as effective in providing safe and healthful employment and places of employment as the Federal standards.

The Federally promulgated Asbestos standard is drafted so that workers in every State would be protected by general, performance-oriented standards. To the extent that there are State or regional peculiarities that could alter work practices, States with occupational safety and health plans approved under section 18 of the OSH Act would be able to develop their own State standards to deal with any special problems. Moreover, the performance nature of this final standard, of and by itself, allows for flexibility by States and contractors to provide as much safety as possible using varying methods consonant with conditions in each State.

In short, there is a clear national problem related to occupational safety and health of workers. While the individual States, if all acted, might be able collectively to deal with the safety problems involved; most have not elected to do so in the twenty-three years since the enactment if the OSH Act. Those States which have elected to participate under section 18 of the OSHA Act would not be preempted by this final regulation and would be able to deal with special, local conditions within the framework provided by this performance-oriented standard while ensuring that their standards are at least as effective as the Federal standard.

IV. Final Regulatory Impact and Regulatory Flexibility Analysis

A. Introduction

In this final revision to the asbestos standard for construction, general industry and shipyards, OSHA is lowering the permissible exposure limit in all affected industry sectors to 0.1 f/cc as an 8-hour time-weighted average. In addition, OSHA is revising ancillary requirements in the current standard to respond to three issues remanded to the Agency by the Court. These issues involved expanded competent person training, clarification of the definition for small-scale, short-duration construction projects, and reporting and transfer requirements in construction. Also, permissible controls in brake and clutch operations are addressed in a revision to the standard for general industry.

Executive Order 12866 requires that a regulatory impact analysis be prepared for any regulation that meets the criteria for a "significant regulatory action." Among these criteria, relevant to this rulemaking is the requirement that the rule have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.

Consistent with these requirements, OSHA has made a determination that the final revised standard will constitute a significant regulatory action. Accordingly, OSHA has prepared this Final Regulatory Impact and Regulatory Flexibility Analysis to demonstrate the technological and economic feasibility of the final revision.

B. Industry Profile

Characteristics and Properties of Asbestos

Asbestos is the generic term applied to a group of naturally-occurring, fibrous silicates characterized by high tensile strength,[1] flexibility, and resistance to thermal, chemical, and electrical conditions. According to the Bureau of Mines, a number of silicates occur naturally in fibrous form, however, not all of these mineral forms are labeled asbestos. Historically, only minerals with (1) commercial importance (2) a crystalline structure with fiber growth along two planes (i.e. lengthwise) and (3) sufficient fiber growth such that the fibers can be identified, separated, and processed, are given the name asbestos [Campbell, 1977].

Asbestos silicates are divided into two mineral groups: serpentine and amphiboles. Both groups are widely distributed in the earth's crust in many igneous and metamorphic rocks. In rare instances, these mineral deposits contain sufficient quantities of usable asbestiform minerals rendering it profitable to mine for commercial asbestos. Some types of commercial asbestos have the properties of softness, silkiness and flexibility that, among other uses, permits them to be spun into thread from which cloth can be woven. This variety, found in the serpentine group and given the name chrysotile, is by far the most abundant of the asbestos minerals, comprising over 90 percent of world production. Five other commercial varieties—riebeckite (crocidolite), grunerite (amosite), anthophyllite, tremolite, and actinolite—belong to the amphibole group and, unlike the serpentines, are characterized by hard and brittle fibers. Chrysotile, amosite, and crocidolite all have extremely high tensile strengths and have been used extensively as reinforcers in cements, resins, and plastics.

Asbestos Production, Consumption, and Use

In the production process, asbestos ore is mined and then milled to achieve a homogeneous, graded input. Raw asbestos is shipped to primary industries to be processed into intermediate or finished products. For some goods, secondary manufacturing may be necessary to complete the production process. The finished product is then sold to construction/consumer industries for application, installation or erection without further modification.

Domestically used asbestos fibers are technically classified into seven quality categories, or grades, with the longer, higher-strength fibers given lower-numbered grade levels.

[1] Tensile strength is defined as the resistance of a material to a force tending to tear it apart.

Table 1 presents the 1992 distribution of asbestos consumption in the United States, by end use, type and grade. Historically, Grades 1, 2 and 3 were used for relatively refined uses such as textiles, electrical insulation, and pharmaceutical and beverage filters. With the introduction of ceramic fibers, fibrous glass, cellulose fibers and other substitutes, use of asbestos in these and other products has declined in recent years. As Table 1 shows, U.S. consumption of chrysotile asbestos is concentrated in Grade 7, whose shorter, lower-strength fibers are used as reinforcers in coatings and compounds, clutch facings and brake linings (friction products), packing and gaskets, and roofing products.

TABLE 1.—U.S. ASBESTOS CONSUMPTION BY END USE, TYPE AND GRADE

[Thousand metric tons]

End use	Chrysotile						Crocidolite	Other (c)	Total asbestos (d)
	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Total (a)(b)			
1991 total	<0.1	2.7	1.8	2.1	27.0	33.8	0.3	0.5	34
1992:									
Asbestos—cement pipe		0.9	0.3			1.2	0.5		1.7
Asbestos—cement sheet				<0.1		<0.1			<0.1
Coatings and Compounds	<0.1	<0.1			0.9	0.9			0.9
Friction products		<0.1	0.7	0.4	8.8	9.9			9.9
Packing and gaskets		<0.1	0.6	<0.1	2.6	3.3			3.3
Paper				<0.1	<0.1	<0.1			<0.1
Plastics	<0.1					<0.1			<0.1
Roofing products		<0.1		<0.1	16.3	16.3			16
Other	<0.1	0.3	<0.1		0.2	0.6			0.6
Total (b)	<0.1	1.3	1.7	0.5	28.7	32.3	0.5		33

Sources: U.S. Bureau of Mines, based on data provided by the Asbestos Institute, Montreal, Canada, the U.S. Bureau of the Census, and the U.S. Bureau of Mines asbestos producer survey.

(a) Includes one ton of Grades 1 and 2 chrysotile for packing and gaskets.
(b) Data may not add to totals shown because of independent rounding.
(c) Source: Bureau of the Census. Includes unspecified fiber type and end use.
(d) Does not include "Other."

Total U.S. asbestos consumption declined 6 percent in 1992 from a level of roughly 35 thousand metric tons[2] a year earlier. Of the 32.8 thousand metric tons used in final products in 1992, 31.6 thousand metric tons were imported, at a value of $7.2 million dollars (not shown in table). World production in 1992 was an estimated 3.1 million metric tons [Bureau of Mines, 1993, Table 1].

In July 1989, the Environmental Protection Agency issued a final rule under section 6 of the Toxic Substances Control Act to prohibit the future manufacture, importation, processing, and distribution of asbestos in almost all products. The Asbestos Ban and Phaseout Rule (40 CFR 763.160) was scheduled to eliminate asbestos in most commercial products in three stages over seven years beginning in 1990 and ending in 1996. EPA's asbestos rule was challenged in U.S. court by the asbestos industry. In October 1991, the U.S. Fifth Circuit Court of Appeals vacated and remanded most of the ban and phaseout rule to EPA. As a result of the Court decision, most asbestos products are no longer subject to the ban and phaseout rule. The Court chose to let stand EPA's authority to ban products that no longer are being produced in or imported into the United States.

Consumption of asbestos products in the United States has declined in recent years due to technological, regulatory and economic factors. U.S. manufacturers have modified product design to either (1) accommodate the use of asbestos substitutes or (2) eliminate the need for fibrous materials altogether. Examples of asbestos substitutes include aramid fiber, carbon fiber, cellulose fiber, ceramic fiber, fibrous glass, organic fiber, steel fibers, and wollastonite. The following products have been successfully introduced as alternatives to asbestos: aluminum, vinyl and wood siding; aluminum and fiberglass sheet; asphalt coatings; ductile iron pipe; polyvinylchloride pipe; prestressed and reinforced concrete pipe; and semimetallic brakes. Although the introduction of asbestos substitutes and alternatives enables manufacturers to avoid contact with asbestos, many of these surrogates pose occupational health hazards of varying degrees.

Despite the decline in U.S. consumption of asbestos, foreign markets continue to demand U.S. asbestos products. The export and re-export of asbestos fibers and asbestos products from the United States was valued at $140.8 million in 1992, an increase of 14 percent from the 1991 level. Leading importers of American asbestos materials were Canada, Japan, Mexico, the United Kingdom, and Germany. At the same time, three members of the European Community—Germany, the Netherlands, and Italy—are taking legislative steps to ban the use of asbestos. Effective dates for the ban initiatives ranged from July 1993 to 1995. In addition, Finland and Poland are phasing out the importation and use of asbestos [Canadian Mineral Yearbook, 1993, p. 10.4].

Asbestos Exposure in General Industry

OSHA has determined that the following general industry groups will be affected by the revision to the asbestos standard: primary manufacture of asbestos friction materials (SIC 3292); primary manufacture of asbestos gaskets and packings (SIC 3053); primary manufacture of asbestos adhesives,

[2] According to the Bureau of Mines, 1991 apparent consumption of asbestos in the United States was 34,765 metric tons [Bureau of Mines, 1993, Table 1]. Total consumption shown in Table 1, taken from another Bureau of Mines table, differs from the first estimate by roughly 800 metric tons. The difference may be partly accounted for by the exclusion of the "Other" category from the 1991 total in Table 1.

sealants, and coatings (SIC 2952); primary manufacture of asbestos-reinforced plastics (SIC 3089); general automotive repair (SICs 551, 554 and 753) and shipbuilding and repair (SIC 3731).

In addition, secondary gaskets and packings and secondary auto remanufacturing fall under the scope of the revised standard. However, few impacts, if any, are anticipated for these industry groups due to their low current exposure levels (below the revised PEL of 0.1 f/cc).

Primary Manufacturing. Primary manufacturers use asbestos fiber as a raw material in the production of an intermediate product to be further processed or fabricated into a finished product. As shown in Table 2, two processes—fiber introduction and product finishing/dry mechanical—are common to all primary manufacturing operations and, according to risk profiles in earlier reports [RTI, 1985; ICF, 1988], have a high potential for generating airborne asbestos fiber.

TABLE 2.—ESTIMATED POPULATION AT RISK FROM OCCUPATIONAL EXPOSURE TO ASBESTOS DURING MANUFACTURING, AUTOMOTIVE REPAIR, AND SHIP REPAIR

[By industry/process]

Sector	Process group	Number of affected establishments	Number of workers exposed	Number of full-time-equivalent exposed workers(a)
General Industry				
Primary manufacturing:				
Friction materials	All	25	1,415	1,415
	Introduction		323	323
	Wet Mechanical		390	390
	Dry Mechanical		389	389
	Other		313	313
Gaskets and packings	All	9	168	168
	Introduction		63	63
	Wet Mechanical		23	23
	Dry Mechanical		39	39
	Other		43	43
Coatings and sealants	All	75	1,181	1,181
	Introduction		803	803
	Other		378	378
Plastics	All	1	18	18
	Introduction		4	4
	Wet Mechanical		1	1
	Dry Mechanical		2	2
	Other		11	11
Secondary manufacturing:				
Gaskets and packings	Dry Mechanical	71	2,142	2,142
Auto remanufacturing	Dry Mechanical	62	1,761	1,761
Services:				
Automotive repair	Dry Mechanical	329,000	676,000	126,750
Shipyards				
Ship repair	All	18	985	241
	Wet Removal/Repair		788	193
	Dry Removal/Repair		197	48
Total		329,261	683,670	133,676

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on CONSAD, 1990, and OSHA, 1994.
(a) Totals in this column show the number of full-time-equivalent workers exposed to abestos at any level.

Friction materials. Asbestos friction products include brake linings (i.e. linings for drum brakes, disc pads for disc brakes, and brake blocks), clutch facings, and industrial linings for equipment and appliances. Based on EPA survey data [ICF, 1988] and discussion with industry experts, OSHA and CONSAD estimate that 25 plants, employing a total of 1,415 workers, currently manufacture primary friction materials [CONSAD, 1990; OSHA, 1994].

Gaskets and packings. Asbestos gaskets are used in static situations to avoid leakage, whereas asbestos packings are used in dynamic applications, such as pumps and valves, to control leakage where motion takes place. According to OSHA and CONSAD's profile of the industry, 130 production workers in 7 establishments are exposed to asbestos.

Coatings and sealants. Asbestos fiber is used as a filler and reinforcer in asphalt and tar-based surface coatings. These products are then used as roof sealants, waterproofing coatings, automobile undercoatings, protective coatings for underground pipelines, anti-condensation coatings for low-temperature refrigeration services and fireproofing for structural steel. OSHA estimates that 1,181 production workers in 75 coatings and sealants plants are affected by the revised standard.

Primary manufacture of plastics. Asbestos-reinforced plastic molding compounds are used in the electronic, automotive, and printing industries. Primary manufacturers of asbestos-reinforced plastics produce molding compounds in pellet or flake form. These plastics are used in commutators and rotors in electrical and automotive applications. Based on OSHA and CONSAD's industry profile [CONSAD, 1990; OSHA, 1994], OSHA projects that

one plastics plant, employing eighteen workers, will be affected by the revised standard.

Automotive repair. The general automotive repair and service sector includes establishments involved in brake and clutch repair work and maintenance. The major source of asbestos exposure in this sector occurs when compressed air is used for blowing the residual dust from the brake lining assembly. In addition, minor exposures in brake repair can occur during spray applications and when handling cloths and other supplies contaminated with asbestos fibers. Replacement of clutch assemblies can also lead to fiber release. CONSAD estimates that approximately 329,000 automobile repair shops and garages, brake and clutch repair establishments, and motor vehicle dealers, employing 676,000 workers, will be affected by the revision to the asbestos standard. OSHA is mandating specific engineering controls and work practices that will affect this sector.

Shipbuilding and repairing—historical contact with asbestos in shipyard work. The revision to the shipyard asbestos standard affects the shipbuilding and repairing industry, SIC 3731. Shipbuilding and repairing is a large-scale manufacturing activity that requires both skilled and unskilled labor. Shipyard work can be categorized into three main operations: (1) ship construction, (2) ship repair, and (3) ship overhaul. Asbestos exposure occurs during those conversion, repair, or overhaul operations where asbestos-containing components are removed or repaired.

Asbestos products were used extensively on American ships from the early 1940s through the late 1970s in joiner bulkhead systems in living space; for insulation of steam and hot water pipes, boilers, and tanks in machinery space; in ceiling tile; and in fire-resistant sheets in bulkheads [RTI, 1985]. However, after 1973, new specifications reduced the use of asbestos on ships regulated by the Maritime Administration (MARAD). Use of asbestos was only permitted in insulation cement in lagging for machinery casings and in lagging cloth.

Since 1978, specifications for government-subsidized ships have required the elimination of all asbestos lagging and insulation materials. Therefore, current ship building activities ordinarily do not generate any worker exposure to asbestos. However, OSHA believes that all ships delivered before 1975 contain extensive asbestos insulation materials, and that ships delivered between 1975 and 1978 contain asbestos in the form of insulating cement on machinery casings. Potential asbestos exposures occur when workers contact these materials during maintenance and repair activities [OSHA, 1986].

Occupational exposure to asbestos. The greatest potential for occupational exposure to asbestos occurs during removal activities due to sawing, tearing, cutting, and scraping operations. Additional sources of asbestos exposure, involving a small number of shipyard workers, occur during repair activities such as removal and installation of gaskets [OSHA, 1986]. Whenever possible, asbestos is thoroughly wetted during removal activities. However, wet removal in nuclear reactor compartments is not permitted because of possible radiation contamination.

Shipyards are owned by both the private sector and the U.S. Navy. Private sector shipyards can be classified into three categories: (1) major shipyards engaged in construction and/or repair with drydocking facilities; (2) smaller "second-tier" shipyards that service inland waterways and coastal commerce and that build and repair smaller vessels; and (3) "topside" repair facilities that work on ships while they remain in the water.

The number of reported firms in SIC 3731, Ship Building and Repairing, has differed in recent years among traditional data sources. Many "firms" classified within the industry are very small, perform shipyard work only intermittently, or are marginal firms with short tenure. The 1987 Census of Manufactures included 590 shipyards (287 with twenty or more employees) operated by 547 companies [Dept. of Commerce, 1990a]. The Commerce Department's 1993 Industrial Outlook estimates a total of 585 establishments [U.S. Industrial Outlook, 1993]. However, in 1987, the Commission on Merchant Marine and Defense reported the existence of only 305 "working" shipyards [Merchant Marine Commission, 1987]. In their 1991 Report on Survey of U.S. Shipbuilding and Repair Facilities, the Maritime Administration reported that "over 200 privately-owned firms are involved in repairing ships in the United States" [Dept. of Transportation, 1991]. In addition to the private-sector shipyards, there are currently eight Navy-owned shipyards and two Navy-owned ship repair facilities [U.S. Industrial Outlook, 1993].

Employment in the shipbuilding and repair industry—as high as 184,000 in 1981—was 118,000 in October 1992 according to the Bureau of Labor Statistics [BLS, 1993]. Employment has also declined in government-owned shipyards. In 1990 the five largest firms employed 81,000 workers while the 12 largest firms (all with at least 1,000 workers) employed 98,000 workers [Dept. of Transportation, 1990].

The largest percentage of asbestos work is performed in major shipyards [OSHA, 1991 (Ocken, p. 395)]. OSHA and CONSAD identified a range of 13 to 23 major shipyards as potentially affected by the revision to the asbestos standard [OSHA, 1994]. These establishments employ approximately 74,000 to 80,500 workers, of which an estimated three percent, or 2,220 to 2,415 workers, perform maintenance and repair activities [RTI, 1985; OSHA, 1994].

As shown in Table 2, OSHA analyzed impacts in two areas of ship repair: wet removal/repair and dry removal/repair. Dry removal and repair occur in ship compartments, such as in nuclear powered vessels, where wet methods are infeasible. Based on OSHA and CONSAD's profile of the ship repair industry, OSHA estimates that 18 shipyards, employing 985 workers, are affected by the revised standard.

Market conditions in the shipbuilding industry. During the 1980s, the shipbuilding industry experienced a sharp decline in output due to (1) competition from subsidized foreign shipbuilders; (2) decreased demand for new ships caused by excess supply; (3) the elimination of some subsidies for U.S. shipbuilders; and (4) a relaxation of the requirements for foreign ships entering the U.S. commercial fleet. No commercial ships were built in the United States between 1985 and 1990, and only four have been built or under construction since 1990. However, due to the requirements of the Jones Act, American shipyards still build all vessels used in domestic commerce—smaller ships, barges, and tugboats. Industry forecasts also predict that the demand for commercial ships will "increase significantly" during the 1990s due to the need for replacement of an aging world merchant fleet [U.S. Industrial Outlook, 1993]. It remains to be seen what fraction of this business may be won by U.S. shipbuilders.

In contrast to the declining market for commercial ship construction, the market for ship repair and conversion work is strong. The U.S. Industrial Outlook reports that "the demand for some ship repair services * * * exceeds what is currently available in certain areas." In addition, investments by U.S. shipyards to improve, expand, and modernize repairing facilities are proceeding. Investment in fiscal year

1992 was $215 million, contrasted with $176 million for purchases of plant, machinery and equipment in 1991 [U.S. Industrial Outlook, 1993].

Asbestos in Construction

The construction industry is the principal market for asbestos materials and products in the United States, accounting for 68 percent of the asbestos consumed in 1992 [Bureau of Mines, 1993]. Asbestos products used in construction include asbestos-cement pipe, asbestos-cement sheet, coatings, compounds, packings, and roofing products.

With the decline in consumption of raw asbestos in U.S. manufacturing coupled with the introduction of asbestos substitutes into product design, the asbestos construction industry has shifted away from activities associated with installing asbestos products. Instead, in the last decade concern over the public risk presented by damaged asbestos in place, as well as the practical need to maintain aging interior sections in commercial and residential buildings, has directed the asbestos construction industry to the areas of demolition, removal, and renovation. In addition, custodial personnel occasionally come into contact with asbestos during their housekeeping duties.

The construction industry is comprised of a large number of firms: approximately 536,300 establishments in 1987, employing just over 5 million workers [Dept. of Commerce, 1990b]. Of this industry total, 423,500 establishments, or 79 percent, employed fewer than 10 workers, while only 9.3 percent had 20 or more employees. The prevalence of small firms is partially related to the ease of entry into the construction industry. To establish a construction firm generally requires minimal capitalization; many firms, in fact, achieve success by carrying little overhead and adapting their services to industry trends. Furthermore, a sizable share of proprietorships in the industry are composed of self-employed individuals who contract their own services, and who shift back and forth from employee status to self-employment status as opportunities change.

In construction, unlike manufacturing, the typical industry end-product is highly differentiated and is produced at a site selected by the purchaser. Due to this degree of product specificity, each worksite usually has its own pattern of material use, building methods, and number and mix of workers. Thus, considerable variation may exist in actual worker use of, or contact with, asbestos materials and products. Although the occasional use of asbestos products appears to be the norm—particularly given the changing material use patterns in new construction—some workers (e.g. asbestos pipe installers and abatement/removal specialists) continually come into contact with asbestos materials and products.

Worker mobility, resulting in considerable shifting among both job sites and employers is another characteristic of the industry. Workers tend to identify with their craft or occupation, not with their employer [Lange and Mills, 1979]. Cyclical changes in the economy and seasonal work patterns cause variability of job opportunities, with a large portion of workers frequently entering and exiting the industry. Collectively, these factors make it very difficult to estimate the total number of workers exposed to asbestos and the duration of their exposure.

Based upon profiles of the asbestos construction industry by OSHA and CONSAD [OSHA, 1994; CONSAD, 1990], OSHA in this final RIA has estimated the number of construction workers potentially exposed in the areas affected by the standard—that is, where asbestos products are installed, replaced, removed, or managed in place. Affected construction activities are found within the following general sectors: new construction; abatement and demolition; building renovation and remodeling; routine maintenance; and custodial work. Table 3 presents OSHA's profile of the population at risk from occupational exposure to asbestos in construction. Below are descriptions of the construction activities categorized within the general sectors affected by OSHA's revised asbestos standard.

TABLE 3.—ESTIMATED POPULATION AT RISK FROM OCCUPATIONAL EXPOSURE TO ASBESTOS DURING NEW CONSTRUCTUION, ABATEMENT, RENOVATION, ROUTINE MAINTENANCE WORK AND CUSTODIAL ACTIVITIES

Construction activity	Annual number of workers potentially exposed (lower bound)	Annual number of workers potentially exposed (upper bound)	Annual full-time-equivalent person—years of exposure (a)
New Construction	494	4,260	2,377
A/C Pipe Installation	224	2,100	1,162
A/C Sheet Installation	270	2,160	1,215
Asbestos Abatement and Demolition	55,101	79,361	21,295
Asbestos Removal	44,491	66,476	16,518
Encapsulation	4,610	6,885	1,615
Demolition	6,000	6,000	3,163
Renovation/Remodeling	60,735	95,914	60,735
Drywall Renovation	51,300	51,300	51,300
Built-Up Roofing Removal	2,235	19,444	2,235
Removal of Flooring Products	7,200	25,170	7,200
Routine Maintenance in Public, Commercial and Residential Buildings	128,867	740,237	25,771
Repair/Replace Ceiling Tiles	13,686	38,650	725
Repair/Adjust HVAC/Lighting	39,434	60,793	2,091
Other Work Above Drop Ceilings	4,847	5,636	299
Repair Boiler	7,218	180,954	1,126
Repair Plumbing	7,218	180,984	1,126
Repair Roofing	24,040	127,621	2,404
Repair Drywall	3,576	80,231	3,576
Repair Flooring	28,848	65,338	14,424

TABLE 3.—ESTIMATED POPULATION AT RISK FROM OCCUPATIONAL EXPOSURE TO ASBESTOS DURING NEW CONSTRUCTUION, ABATEMENT, RENOVATION, ROUTINE MAINTENANCE WORK AND CUSTODIAL ACTIVITIES—Continued

Construction activity	Annual number of workers potentially exposed (lower bound)	Annual number of workers potentially exposed (upper bound)	Annual full-time-equivalent person—years of exposure (a)
Routine Maintenance in Industrial Facilities	243,454	631,046	2,711
Remove/Install Gaskets, Small Scale	58,122	61,623	378
Remove/Install Gaskets, Large Scale	11,083	109,662	211
Remove/Repair Boiler Insulation, Small	22,204	26,172	169
Remove/Repair Boiler Insulation, Large	4,156	48,827	79
Remove/Repair Pipe Insulation, Small	22,204	26,172	169
Remove/Repair Pipe Insulation, Large	4,156	48,827	79
Miscellaneous Maintenance, Small	44,593	49,957	312
Miscellaneous Maintenance, Large	8,312	89,974	158
Miscel. Telecommunications Maintenance, Small	32,544	48,240	354
Miscel. Telecommunications Maintenance, Large	36,080	121,592	802
Custodial Work in Public, Commercial and Residential Buildings:			
Sweeping, cleaning, dusting activities	1,126,000	3,665,000	223,160
Custodial Work in Industrial Facilities:			
Sweeping, cleaning, dusting activities	143,355	535,768	31,442
Total	1,758,006	5,751,586	367,491

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1986, and OSHA, 1994.
(a) Totals in this column show the number of full-time-equivalent workers exposed to asbestos at any level.

New construction. New construction activities account for the bulk of asbestos materials and products consumed in a typical year. Major products include asbestos-cement pipe, asbestos-cement sheet, coatings and compounds, and roofing products. As depicted in Table 1, these construction products comprised over half (19 thousand metric tons) of the total U.S. asbestos consumption in 1992.[3]

Asbestos-cement pipe. Asbestos-cement pipe (A/C pipe) is used chiefly for transporting drinking water in a pressurized condition and to provide drainage for storm water, sewage and other liquid waste. Approximately 90 percent of A/C pipe purchases are of pressure water pipe [AIA, Ex. 117, 1991]. A/C pipe is also used in industrial applications, to carry gaseous products, and as an electrical conduit for heating, cooling and gas venting [ICF, 1988].

Use of A/C pipe in the United States is concentrated in the Mountain, Pacific and Southwest regions. In 1991, the Asbestos Information Association commented [Ex. 117] that "pre-cut, pre-tapped pipe has received tremendous marketplace acceptance and represents a large majority of sales." This is significant because the use of pre-cut, pre-tapped pipe may reduce or eliminate some types of field fabrication activities.

A/C pipe is composed of 15–25 percent asbestos, 42–53 percent Portland cement, and 34–40 percent ground silica sand. The use of raw asbestos in the production of A/C pipe fluctuated somewhat but remained fairly constant during the mid-1980s (26,100 metric tons in 1983, 37,000 metric tons in 1984, 32,691 metric tons in 1985) [ICF, 1988] but has declined dramatically since: 7,900 metric tons in 1989, 1,700 metric tons in 1992 [Bureau of Mines, 1993]. The use of substitutes for asbestos and the overall slump in new construction in the early 1990s probably account for much of the decline in asbestos consumption in A/C pipe. Based on OSHA and CONSAD's profile of the industry, OSHA estimates that 224 to 2,100 workers, or an average of 1,162 workers, are exposed to asbestos during installation of A/C pipe.

Asbestos-cement sheet. Asbestos-cement sheet (A/C sheet) has a variety of uses as a structural, technical and decorative material in large residential buildings, electrical utilities, industrial plants, schools, and hospitals. A/C sheet includes flat sheet, corrugated sheet, and roofing and side shingles. Of these four main types of A/C sheet, all, as of the date of ICF's market survey, were produced in the United States with the exception of corrugated sheet [ICF, 1988]. According to ICF, flat A/C sheet has the following principal applications:

- Wall lining in factories and agricultural buildings
- Fire-resistant walls
- Curtain walls
- Industrial partitions
- Soffit material (covering the underside of structural components
- Interior and exterior decorative paneling. Specialized applications of flat A/C sheet include its use in cooling towers, as laboratory table tops and fume hoods, and as a component of vaults, ovens, safes, heaters, and boilers.

Asbestos-cement shingles are used as siding and roofing for residential and commercial buildings. According to results from ICF's market survey, demand for roofing shingles represents 70 percent of consumption in the A/C shingle market while demand for siding shingles constitute the remainder of the market.

A/C sheet may contain anywhere from 15 to 40 percent asbestos, in combination with cement and, occasionally, silica [Cogley, et al., 1982]. In recent years, manufacturers have substituted other materials for asbestos in the production of A/C sheet; meanwhile, due to unit price differences, alternative construction components such as pre-cast concrete and cement/wood board have replaced A/C sheet in the building industry [OSHA, 1986]. Together, these factors have contributed to a decline in asbestos consumption in the A/C sheet market from levels of roughly 11,000 metric tons of raw asbestos in the early 1980s

[3] Total consumption of asbestos-cement sheet was approximated as 50 metric tons for the purpose of this calculation.

[OSHA, 1986] to a 1992 consumption of under 100 metric tons (see Table 1). OSHA estimates that, the population at risk during A/C sheet installation ranges from 270 to 2,160 workers, or an average of 1,215 employees.

Asbestos abatement and demolition. Increased health concerns regarding the potential release of asbestos fibers have prompted a desire to remove or encapsulate such materials in existing buildings. In response to this demand, a variety of specialty contractors and construction trades have become active in asbestos abatement, particularly in schools, where EPA regulations have indirectly generated a large market for this type of service.

The asbestos abatement industry experienced extraordinary growth in the 1980s due to legal, regulatory, economic and health-related factors. Rifkin-Wernick Associates [Rifkin-Wernick, 1990], specialists in analyzing the asbestos industry, estimate that combined public and private building ownership spent $4.2 billion in 1989 for services and products related to asbestos abatement in their properties. This level of abatement expenditures represented an increase of 24 percent over levels in 1988. According to Rifkin-Wernick, asbestos construction activities associated with demolition, renovation, and operations and maintenance accounted for around 90 percent of abatement expenditures; the remainder of abatement expenditures satisfied legal or economic considerations while addressing lower-level safety concerns.

Rifkin-Wernick reports that approximately 50 percent of asbestos abatement business in 1989 occurred in eight states: California, New York, Texas, Pennsylvania, Illinois, Ohio, Florida and Michigan. Of the $4.2 billion in abatement expenditures in 1989, commercial buildings (offices, retail establishments, hotels/motels and warehouses) accounted for $1.4 billion in abatement services. Industrial buildings accounted for nearly $1 billion in asbestos abatement expenditures, while abatement in schools totalled $800 million, or roughly one-fifth of the industry.

In early 1990, 2,100 asbestos abatement contractors operated in the United States under either state certification or some other license. Rifkin-Wernick estimates that abatement contractors in 1989 employed 161,000 workers, of which 98,000 were full-time. Firm size in the industry was generally small: 80 percent of contractors employ fewer than 50 people and over half of asbestos contractors have no part-time employees.

Contractor revenues in 1989 totalled $3.6 billion. Rifkin-Wernick classified contractors by revenue size and geographic radius of operation. National contractors are defined as conducting business beyond 1,000 miles of headquarters and with revenues above $20 million. Regional contractors, in Rifkin-Wernick's classification system, tend to operate 250 to 1,000 miles from the main office and earn revenues of $5 million to $20 million. Finally, local contractors operate primarily within a 250-mile radius of home and earn under $5 million. Table 4 presents Rifkin-Wernick's 1990 assessment of contractor market concentration for two earlier years and market projection for 1994.

TABLE 4.—MARKET CONCENTRATION
[1987–1994]

	1987	1989	1994 (projected)
Number of Contractors:			
National	8	20	15
Regional	100	200	150
Local	1,200	1,872	500
Total	1,308	2,092	665
Revenues ($ Million):			
National	$155	$832	$1,050
Regional	362	1,720	2,250
Local	517	1,086	470
Total	1,034	3,638	3,770
Market Share (%)			
National	15%	23%	28%
Regional	35%	47%	60%
Local	50%	30%	12%
Total	100%	100%	100%
Revenues Per Contractor ($ Million):			
National	$19.3	$41.6	$70.0
Regional	3.6	8.6	15.0
Local	0.4	0.6	0.9
Total	0.8	1.7	5.7

Source: Rifkin-Wernick, 1990.

In developing its profile of the abatement and demolition industry, OSHA [OSHA, 1994], recognized the growth in market specialization observed by Rifkin-Wernick and other experts. Therefore, OSHA applied lower-bound worker population estimates to the cost and benefit analysis. For all of abatement and demolition, OSHA estimates a full-time workforce of 21,295 persons.[4]

Renovation and remodeling. The principal general renovation activities that entail occupational exposure to asbestos are: the demolition of drywall (including removal of transite panels), the removal of built-up roofing containing asbestos roofing felts, and the removal of asbestos flooring products. OSHA and CONSAD [OSHA, 1994] estimate that anywhere from 60,735 to 95,914 workers—all of whom are full-time professionals—may be at risk from asbestos exposure during renovation and remodeling. OSHA believes that specialization has emerged in the industry to the extent that a lower-bound estimate of the workforce is appropriate in this impact analysis. Consequently, OSHA estimates that 60,735 full-time-equivalent workers in renovation and remodeling of asbestos-containing buildings are affected by the revised standard.

Drywall demolition. The occupational exposure to asbestos associated with the demolition and renovation of drywall results primarily from the release of asbestos fibers from the spackling, tape, and joint compounds used to produce a smooth surface across the entire wall. Although the use of asbestos in drywall tape and spackling compound is now prohibited, asbestos-containing finishing materials were routinely used in drywall application through the early 1970s. Thus, the demolition and renovation of drywall in any building constructed prior to the mid-1970s is likely to expose workers to friable asbestos.

On occasion, drywall renovation involves contact with sprayed- and troweled-on fireproofing and other asbestos surfacing material. Information on the frequency of contact with high-risk asbestos-containing material during drywall renovation is limited but suggests that a minor percentage of projects are affected [CONSAD, 1985]. OSHA estimates that 20 percent of drywall renovations involve contact with high-risk ACM. A breakdown of the worker population for drywall renovation is given below under *BENEFITS.*

Built-up roofing removal. Built up roofs constructed with asbestos roofing felts generally have long useful lives of 20 or more years. CONSAD [CONSAD, 1990] used Bureau of Mines data on production of roofing felt in the 1960s to estimate that approximately 80,000

[4] OSHA notes that its estimate for the number of full-time abatement workers is lower than Rifkin-Wernick's 1989 estimate. OSHA believes that this discrepancy may possibly be due to three factors: 1) the cyclical decline in the industry during the recession of 1990–1991 and subsequent slow recovery; 2) increased specialization among abatement workers and the adoption of labor-saving technologies and work practices; and 3) the inclusion of abatement workers in other activity groups within OSHA's industry profile.

tons of asbestos-containing roofing products will be removed annually.

Removal of asbestos flooring products. Asbestos flooring products, also termed "resilient floor coverings," include vinyl/asbestos floor tile, asphalt/asbestos floor tile, and sheet flooring backed with asbestos felt. Asbestos flooring products are estimated to be in over 3.6 million buildings [EPA, 1984]. Although these floors have a useful life of approximately 25–30 years, they are generally replaced more often [RFCI, 1990].

Routine maintenance in public, commercial and residential buildings. Routine building maintenance activities can involve exposure to asbestos because of the presence of products containing asbestos. Worker exposure can be a result of direct contact with the asbestos materials and products or can result from disturbance of settled dust in the vicinity of asbestos-containing materials (for example, when work above a drop ceiling is performed where asbestos-containing insulation or fireproofing was used). Maintenance activities that can involve asbestos exposure include: adjustment or repair of HVAC ductwork or lighting (above a drop ceiling); replacement of drop ceiling tiles; repair of leaking water or steam pipes; boiler maintenance or repair activities; and repairs to roofing, drywall or flooring. Workers at risk during these activities include in-house building maintenance personnel, contract maintenance crews, and special trades contractors. Based on an industry profile by CONSAD [CONSAD, 1990], OSHA estimates that anywhere from 128,867 workers to 740,237 workers are potentially exposed while performing routine maintenance activities in public, commercial and residential buildings.

For this economic impact analysis, OSHA assumed that owners of affected buildings will minimize compliance costs by applying maintenance personnel—whether in-house or contract—to asbestos projects on a full-time basis, where possible. Under this assumption, the absolute number of affected workers would equal the lower-bound estimate for the population at risk (128,867 workers). In terms of person-years of exposure (number of persons exposed over a year of eight-hour days), the lower-bound population at risk equates to 25,771 full-time-equivalent persons, as shown in Column 3 in Table 3.

Renovation, maintenance, and repair operations comprise a significant portion of total construction activity. In 1987, receipts from maintenance and repair operations alone were $50.4 billion, or 10 percent of total construction receipts [Dept. of Commerce, 1990b].

Routine maintenance in industrial facilities. In general industry, routine maintenance and repair can involve the disturbance of asbestos-containing materials and products (ACM), including such products as gaskets, pipe and boiler insulation, electronic components and structural building materials. Asbestos industrial materials and products are most widely used in (1) the manufacture of malt beverages, paper products, chemicals, petroleum products, glass and ceramics, iron and steel, and fabricated metal products; (2) telephone communications; (3) electric utilities; and (4) other public utilities (gas, water, sanitary services). Occupational exposure to asbestos fibers can occur among maintenance workers directly involved in disturbance of ACM as well as among production workers near the maintenance work site.

For this final analysis of the costs and benefits of the revised asbestos standard, OSHA identified five general types of routine maintenance in industrial facilities, listed below.

- Gasket removal and installation
- Boiler removal and installation
- Pipe removal and installation
- Miscellaneous maintenance
- Miscellaneous telecommunications maintenance

Miscellaneous maintenance includes the variety of building maintenance (ceiling work, roofing, drywall, etc.) described above under *Routine Maintenance in Public, Commercial, and Residential Buildings.* Miscellaneous telecommunications maintenance includes 1) removal of electronic components, particularly line card resistors, insulated with asbestos and 2) placement or removal of communications wire and cable.

Table 3 presents the range of workers in general industry potentially exposed to asbestos during routine maintenance tasks. In this impact analysis, OSHA assumes that, to minimize compliance costs, affected establishments will concentrate asbestos maintenance duties among a group of trained specialists. Shown in Column 3 in the table are OSHA's estimates for full-time populations at risk for each maintenance activity. For all of general industry, a total of 2,711 full-time-equivalent persons perform construction-related duties.

Custodial work in public, commercial and residential buildings. Asbestos exposure in public and commercial buildings can occur during a variety of tasks involving disturbance of asbestos or asbestos-containing materials, in addition to routine maintenance activities described above. Custodial work in buildings with ACM can include any of the following types of activities: sweeping; cleaning; dusting; mopping; vacuuming; stripping and buffing of vinyl-asbestos floor tile; and clean-up after asbestos removal or other significant asbestos construction work.

A recent EPA-sponsored study of asbestos exposure among custodial workers in Missouri reports frequency and duration of custodial activities [Wickman, et al., 1992]. Modeling a custodial worker profile on the Missouri study and on building survey data from EPA, OSHA and CONSAD estimated the range of workers potentially at risk [OSHA, 1994]. OSHA estimates that anywhere from 1.1 million to 3.7 million workers are at risk from asbestos exposure during custodial work.

OSHA believes that there is presently little specialization in asbestos custodial work and that the actual number of workers at risk approximates the average of the lower-bound and upper-bound number of workers. In terms of person-years of exposure over work weeks consisting of eight-hour days, OSHA estimates that 223,160 full-time-equivalent workers are at risk during custodial disturbance of asbestos or asbestos-containing materials.

Custodial work in industrial facilities. Custodial work in industrial facilities largely resembles custodial work in public, commercial, and residential buildings and was identically modeled by CONSAD. The workforce at risk performing custodial activities in industrial facilities ranges from 143,355 to 535,768 workers, as shown in Table 3. Taking the average of this range and calculating the full-time-equivalent population, OSHA estimates that 31,442 person-years of exposure occur in general industry annually during custodial work.

C. Assessment of Regulatory and Non-Regulatory Alternatives Introduction

The declared purpose of the Occupational Safety and Health (OSH) Act of 1970 is "* * * to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources * * *" Thus, the Act requires the Secretary of Labor, when promulgating occupational safety and health standards for toxic materials or harmful physical agents, to set the standard " * * * that most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity * * *" On the basis of this congressional directive, OSHA has

responded to the Court of Appeals by issuing a final revision to the asbestos standard, the intent of which is to further reduce the adverse health effects associated with occupational exposure to asbestos. This chapter reviews regulatory and non-regulatory alternatives that OSHA considered and found to be inadequate for full remediation of the occupational hazards of asbestos.

Private Markets and Occupational Health

Economic theory suggests that the need for government regulation is greatly reduced where private markets work efficiently and effectively to allocate health and safety resources. The theory typically assumes perfectly competitive labor markets where workers, having perfect knowledge of job risks and being perfectly mobile among jobs, command wage premiums that fully compensate for any risk of future harm. Thus, theoretically, the costs of occupational injury and illness are borne initially by the firms responsible for the hazardous workplace conditions and, ultimately, by the consumers who pay higher prices for the final goods and services produced by these firms. With all costs internalized, private employers have an incentive to reduce hazards wherever the cost of hazard abatement is less than the cost of the expected injury or illness. The resultant level of safety and health is considered "efficient" in the sense that it minimizes the sum of the costs of hazard prevention and of injury or illness. Perfectly competitive labor markets, however, do not exist for many industrial markets. OSHA, therefore, believes that it must take appropriate actions to provide greater worker protection against exposures to toxic substances.

Evidence indicates that market forces have not been effective in reducing excessive occupational exposure to asbestos, thereby contributing to the development of diseases related to it. In spite of the hazards associated with asbestos, the social costs of production have not been internalized, in part because of market imperfections and the existence of externalities. Consequently, the amount of protection that the private market will offer to workers differs from the socially desired level, for the following reasons.

First, evidence on occupational health hazards in general suggests that, in the absence of immediate or clear-cut danger, employees and employers have little incentive to seek or provide information on the potential long-term effects of exposure. When relevant information is provided, however, employers and employees might still find informed decision making a difficult task, especially where long latency periods precede the development of disease. Moreover, if signs and symptoms are nonspecific—that is, if an illness could be job-related or could have other causes—employees and employers may not link disease with exposure.

Second, even if workers were fully informed of the health risks associated with exposure to asbestos, many face limited employment options. Non-transferability of occupational skills and high regional unemployment rates sharply reduce a worker's expectation of obtaining alternative employment quickly or easily. A worker employed in resurfacing automobile brakes, for example, could find it difficult to apply occupational skills to a new job in searching for a safer workplace. In many regions of the country, the practical choice for workers is not between a safe job and a better paying but more hazardous position, but simply between employment and unemployment at the prevailing rates of pay and risk. In addition to the fear of substantial income loss from prolonged periods of unemployment, the high costs of relocation, the reluctance to break family and community ties, and the growth of institutional factors such as pension plans and seniority rights serve to elevate the cost of job transfer.

In addition to the market imperfections, externalities result in employers and employees settling for an inefficiently low level of protection from toxic substances. For the competitive market to function efficiently, only workers and their employers should be affected by the level of safety and health provided in market transactions. In the case of occupational safety and health, however, society shares part of the financial burden of occupationally induced diseases, including the costs of premature death, excess sickness, and disability. Individuals who suffer from occupationally related illness are cared for and compensated by society through taxpayer support of social programs, including welfare, Social Security, and Medicare. These combined factors of labor market imperfections and the existence of externalities prevent the market from delivering an optimal supply of healthful working conditions in industries where asbestos hazards exist.

Tort Liability and Asbestos Litigation

Greater reliance on the use of liability under tort law is one of the examples of a non-regulatory alternative identified and set forth by the Office of Management and Budget guidelines for implementing Executive Orders 12866 and 12291. Prosser [Prosser, 1971] describes a tort, in part, as a "civil wrong, other than a breach of contract, for which the court will provide a remedy in the form of an action for damages," although he says that "a really satisfactory definition has yet to be found."

If the tort system effectively applied, it would allow a worker whose health has been adversely affected by occupational exposure to asbestos to sue and recover damages from the employer. Furthermore, the tort system would shift the liability of direct costs of occupational disease from the worker to the firm under certain specific circumstances. The tort system has had limited success in shifting the cost of occupational disease. The limitations of the system are discussed in the following paragraphs.

Asbestos product liability litigation as a means of reducing worker exposure to asbestos has proven effective in some areas, but cumbersome to resolve. The difficulties are inherent in the litigation process as it relates to asbestos products and in the nature of the diseases associated with asbestos.

With very limited exceptions, however, the tort system is not a viable alternative in dealings between employees and their employers. All states have legislation providing that Workers' Compensation is either the exclusive or principal remedy available to employees against their employers. Thus, tort law can only be applied to third-party suppliers of a hazardous substance. It is often difficult, however, to demonstrate cause, which is a necessary prerequisite for the successful application of tort liability against these suppliers.

First, knowledge of the worker exposure must exist. The worker and/or the physician must be aware of both the magnitude and duration of exposure to asbestos and the causal link between the disease and the occupational exposure. Furthermore, it could be extremely difficult to isolate the role of occupational exposures in causing the disease, especially if workers are exposed to many toxic substances. Second, the liable party must be identifiable, but workers may have several employers over a working lifetime. Third, the scientific and medical evidence available to support the contention that the disease was caused by job-related exposure must withstand judicial standards for proof of causality. This task is very difficult

because of the long latency periods associated with asbestos-related diseases.

The costs associated with producing information and with litigation itself may be quite substantial. First, information is a public good, which means that once produced it can be transmitted inexpensively to any number of individuals without diminishing the quality or quantity of the information. It is, therefore, difficult to control distribution once the information is produced. A producer of information may find that information produced at great expense can be acquired freely by potential customers, and that, consequently, the market for the information has virtually disappeared. As a result, public goods are typically underproduced relative to what is considered economically efficient. This general undersupply of information adversely affects the workers' awareness of the cause of their illness and thus reduces the likelihood that they will pursue tort liability suits.

Second, legal proceedings impose costs on both plaintiffs and defendants. Victims of torts must incur legal fees associated with bringing about court action. In deciding whether to sue, the victim must be sure that the size of the claim will be large enough to cover legal expenses. In effect, the plaintiff is likely to face substantial transaction costs in the form of legal expenses. These are commonly set at a 33 percent contingency for the plaintiff's lawyer, plus legal expenses. The accused firm must also pay for its defense. A report prepared by the Research Triangle Institute [RTI, 1982], contains some data pertaining to legal costs and the size of awards. One investigator, for example, found that an average ratio of legal costs to proceeds was 37 percent for a sample of cases. The data, however, do not separate legal fees paid by the defendants and plaintiffs.

The majority of occupational disease tort activity has involved workers exposed to asbestos. These employees could avoid the exclusive remedy of Workers' Compensation by suing suppliers, whereas asbestos exposures are best controlled by employers.

In a consolidated class-action case in 1990, a Texas court awarded more than $3.5 million in compensatory damages to 2,366 workers who had been exposed to asbestos in refineries. Punitive damages were to be awarded on the basis of gross negligence on the part of the suppliers [Dallas Morning News, 1990].

In 1993, a settlement was reached in a lawsuit involving future personal injury claims against 20 asbestos product manufacturers represented by the Center for Claims Resolution (Carlough v. Amchem Products, Inc). It would provide $1 billion over the next ten years to settle about 100,000 claims as people exposed to the manufacturers' products contract asbestos-related conditions. Payments would depend on the type of condition and attorneys' fees would be capped at 25 percent of each payment [BNA, 1993]. The settlement was reached by parties aware of the decades-long impasses in asbestos litigation that have frustrated the tort liability process.

It is unusual for insurance and liability costs to be borne in full by the specific employer responsible for the risk involved. For firms using insurance, the premium determination process is such that premiums only partially reflect changes in risk associated with changes in asbestos or other hazardous exposures. This results in the so-called "moral hazard problem," which is the risk that arises from the possible dishonesty or imprudence of the insured. As the insured has paid for an insurance company to assume some of his or her risks, he or she has less reason to exercise the diligence necessary to avoid losses. This transfer of risk is a fundamental source of imperfection in markets.

For firms that self-insure or carry liability insurance with a large deductible, the costs of a single claim may be fully borne by the firm. Very small firms, and large firms with a large number of claims, however, may fail to meet the full costs by declaring bankruptcy, as has happened with Johns Manville and other former asbestos producers. The attempts at financial restructuring by defendants of asbestos litigation further reduce the chances that workers who contract asbestos-related diseases as employees of these companies or as employees of companies that used their products will collect compensation [Washington Post, 1990].

Workers' Compensation

The Workers' Compensation system came about as the result of perceived inadequacies in liability or insurance systems to compel employers to prevent occupational disease or compensate workers fully for their losses. This system was designed to internalize some of the social costs of production, but in reality it has fallen short of compensating workers adequately for occupationally related disease. Thus, society shares the burden of occupationally related adverse health effects, premature mortality, excess morbidity, and disability through taxpayer support of social programs such as welfare, Social Security disability payments, and Medicare.

Government Regulations and Rejected Alternative Standards

In order to compensate for market imperfections (some of which are detailed above), a number of federal and state regulations have been promulgated in the attempt to improve the allocation of resources. While some of these regulations may have a limiting effect on occupational exposures to asbestos, OSHA does not believe that these regulations obviate the need for an OSHA standard regulating occupational exposure to asbestos.

OSHA's current permissible exposure level (PEL) for asbestos of 0.2 fibers per cubic centimeter (f/cc) does not eliminate all significant risk to workers. Given the recent health evidence of carcinogenic and non-carcinogenic hazards, OSHA believes that to fully protect workers it is necessary to lower the asbestos PEL and establish ancillary provisions.

For public, commercial, residential and industrial buildings, OSHA rejected, on the basis of cost and feasibility considerations, alternative approaches requiring owners to conduct up-front inspections for asbestos-containing materials or to inspect before ACM is disturbed. These approaches have also been examined by the Environmental Protection Agency. An analysis by EPA's contractor [Abt, 1992] projected potential compliance costs of $13.2 billion to $16.2 billion for an up-front survey approach and potential costs of $3.2 billion to $14.5 billion for an identify-before-disturb option. OSHA's approach, instead, specifies parameters for making reasonable assumptions about the presence of asbestos-containing materials within building components and notifying and protecting maintenance workers, custodians and building occupants as prescribed elsewhere in the revised standard.

D. Benefits of the Revision to the Final Asbestos Standard Introduction

The inhalation of asbestos fiber has been clearly associated with three clinical conditions: asbestosis, mesothelioma (a cancer of the lining of the chest or abdomen), and lung cancer. Studies have also observed increased gastrointestinal cancer risk. Risk from cancer at other sites, such as the larynx, pharynx, and kidneys, is also suspected.

Initial exposure limits for asbestos were based on efforts to reduce asbestosis which was known to be associated with asbestos exposure. The

reduction in cases of asbestosis, however, resulted in workers living long enough to develop cancers that are now recognized as associated with asbestos exposure. The following discussion of the benefits associated with a reduction in exposures, therefore, focuses on the number of cancer cases avoided within the exposed work force. The results are expressed in terms of deaths avoided because these cancers almost always result in death.

Methodology

OSHA calculated expected benefits following promulgation of the final revised asbestos standard for workers employed in the general industry, shipyards, and construction sectors. In this benefits analysis, the following types of preventable asbestos-related cancer mortalities were evaluated: (1) Preventable lung cancers, (2) preventable mesotheliomas, and (3) preventable gastrointestinal cancers. The risk assessment used to derive OSHA's estimate of the number of cancers prevented is discussed in Chapter 5 of the regulatory impact analysis of the 1986 final asbestos standard [OSHA, 1986]. For this analysis, OSHA updated the 1986 risk assessment to include 1991 data on the gender and age distribution within affected industry sectors [BLS, 1991] and the 1991 mortality rates associated with malignant neoplasms of respiratory and intrathoracic organs [NCHS, 1993].

The benefits of a reduction in the PEL depend upon current exposure levels, the number of workers exposed, and the risk associated with each exposure level. OSHA's estimates for current exposures, the number of full-time equivalent workers exposed, and the exposure levels after compliance with the revision to the final rule are presented in Table 5 for general industry and shipyards and Table 6 for construction.

TABLE 5.—ESTIMATED OCCUPATIONAL EXPOSURE TO ASBESTOS AND REDUCTION IN CANCER RISK IN GENERAL INDUSTRY AND SHIPYARDS AS A RESULT OF THE FINAL REVISION TO THE STANDARD

Sector	Number of full-time-equivalent exposed workers	Representative exposure leveis absent respiratory protection (f/cc)	Current exposure level (f/cc)	Level of exposure (f/cc) after final rule	Reduction in cancer deaths
General Industry:					
Primary Manufacturing:					
Friction Materials	1,415	0.1419	0.0390	0.00651	0.0510
Gaskets and Packings	168	0.0999	0.0430	0.00718	0.0067
Coatings and Sealants	1,181	0.0970	0.0420	0.00701	0.0458
Plastics	18	0.0638	0.0540	0.00902	0.0009
Services:					
Automotive Repair	126,750	0.017	0.0170	0.00294	1.9768
Shipyards:					
Wet Removal/Repair	193	0.42	0.1162	0.00739	0.0244
Dry Removal/Repair	61	3.7	0.1889	0.01202	0.0099
Total	129,774	.....	.....	.....	2.12

Source: U.S. Department of Labor, OSHA, Office of Regulatory Analysis, based on CONSAD, 1990, Table 3.2, OSHA 1986, Table V–1, and the rulemaking record.

TABLE 6.—ESTIMATED OCCUPATIONAL EXPOSURE TO ASBESTOS AND REDUCTION IN CANCER RISK IN CONSTRUCTION AS A RESULT OF THE FINAL REVISION TO THE STANDARD

Sector	Construction classification under the final standard	Number of Full-time-equivalent exposed workers	Potential mean fiber exposure with minimal controls (f/cc)	Representative fiber exposure absent respiratory protection (f/cc)	Mean current exposure level (f/cc)	Mean exposure level after final rule (f/cc)	Reduction in cancer deaths
New Construction:							
Asbestos/Cement Pipe		1,162	0.38	0.035	0.0350	0.00253	0.044
Asbestos/Cement Sheet		1,215	0.2	0.13	0.1000	0.00723	0.131
Asbestos Abatement and Demolition:							
Removal of High-Risk Materials.	I	16,518	12.0	3.09	0.1801	0.01042	3.246
Asbestos Encapsulation	III	1,615	0.22	0.22	0.0220	0.01890	0.006
Demolition	I	3,163	9.9	0.61	0.0413	0.00069	0.149
General Building Renovation:							
Drywall Renovation/Removal of High-Risk ACM.	I	10,260	3.4	0.2061	0.1619	0.00936	1.813
Drywall Renovation	II	41,040	0.15	0.009	0.1130	0.00654	5.061
Built-up Roofing Removal	II	2,235	0.12	0.03	0.0900	0.00625	0.217
Floor Products Removal	II	7,200	0.495	0.03	0.0399	0.00022	0.331
Routine Maintenance in Public, Commercial and Residential Buildings:							
Repair/Replace Ceiling Tiles.	III, IV	725	0.45	0.027	0.0714	0.00182	0.058

TABLE 6.—ESTIMATED OCCUPATIONAL EXPOSURE TO ASBESTOS AND REDUCTION IN CANCER RISK IN CONSTRUCTION AS A RESULT OF THE FINAL REVISION TO THE STANDARD—Continued

Sector	Construction classification under the final standard	Number of Full-time-equivalent exposed workers	Potential mean fiber exposure with minimal controls (f/cc)	Representative fiber exposure absent respiratory protection (f/cc)	Mean current exposure level (f/cc)	Mean exposure level after final rule (f/cc)	Reduction in cancer deaths
Repair/Adjust Ventilation/Lighting.	III, IV	2,091	0.31	0.019	0.0319	0.00081	0.075
Other Work Above Drop Ceiling.	III, IV	299	0.31	0.019	0.0492	0.00125	0.017
Repair Boiler	I, III	1,126	1.62	0.07	0.1624	0.00939	0.200
Repair Plumbing	I, III	1,126	1.62	0.07	0.1624	0.00142	0.210
Repair Roofing	II, III	2,404	0.12	0.03	0.0900	0.00625	0.233
Repair Drywall	II, III	3,576	0.15	0.009	0.1130	0.00016	0.467
Repair Flooring	II, III	14,424	0.25	0.018	0.0240	0.00032	0.396
Routine Maintenance in Industrial Facilities:							
Removal/Install Gaskets (Small).	III	378	0.44	0.05	0.0386	0.00045	0.017
Removal/Install Gaskets (Large).	II, III	211	0.44	0.05	0.0924	0.00012	0.023
Remove/Repair Pipe Insulation (Small).	III	169	1.62	0.07	0.2730	0.00014	0.053
Remove/Repair of Pipe Insulation (Large).	I, III	79	1.62	0.07	0.2730	0.00005	0.025
Remove/Repair Boiler Insulation (Small).	III	169	1.23	0.05	0.0866	0.00501	0.016
Remove/Repair Boiler Insulation (Large).	I, III	79	1.23	0.05	0.0866	0.00120	0.008
Miscellaneous Routine Maintenance Activities (Small).	III, IV	312	0.294	0.03	0.0618	0.00036	0.022
Miscellaneous Routine Maintenance Activities (Large).	I, II, III, IV	158	0.294	0.03	0.0618	0.00009	0.011
Miscel. Telecommunications Maint. (Small).	IV	354	0.31	0.019	0.0651	0.00249	0.026
Miscel. Telecommunications Maint. (Large).	II, IV	802	0.31	0.019	0.0381	0.00059	0.035
Custodial Work in Public/Commercial/Residential Buildings.	IV	223,160	.....	0.0459	[a]0.0459	0.00035	11.764
Custodial Work in Industrial Facilities.	IV	31,442	.....	0.0459	[a]0.0459	0.00035	1.657
Building Occupants		11,664,000	.....	.....	[a]0.0014	0.00035	14.172
Total		12,031,491	.....	.....	.....	.....	40.48

Source: U.S. Department of Labor, OSHA, Office of Regulatory Analysis, based on CONSAD, 1990, Table 2.10, OSHA, 1986, Table V—2, and the rulemaking record.

[a] Estimated current exposures for this population exclude the application of respiratory protection.

OSHA calculated annual preventable cancers associated with the revised standard through a five-step procedure. First, OSHA estimated baseline occupational exposure levels—in terms of 8-hour time-weighted average fiber levels—for all affected sectors using data from the record and from previous asbestos regulatory impact analyses. Then, applying the OSHA/Nicholson risk assessment model to baseline exposures and the associated populations at risk, OSHA calculated baseline cancers among affected workers. In the third step, OSHA estimated occupational exposure levels as a result of compliance with the final standard, using assigned protection factors for designated controls. OSHA then projected total residual cancers following promulgation of the standard. Finally, OSHA calculated the number of compliance-related preventable cancers by subtracting the number of residual cancers from the number of baseline cancers.

Occupational Exposure Profile

For each sector affected by the revised asbestos standard, OSHA assessed current occupational exposures using data from past regulatory impact analyses and the rulemaking records for this final standard and for previous OSHA asbestos standards. Principal sources of exposure data for this final RIA were Economic and Technological Profile Related to OSHA's Revised Permanent Asbestos Standard for the Construction Industry and Asbestos Removal and Routine Maintenance Projects in General Industry prepared by OSHA's contractor CONSAD Research Corporation [CONSAD, 1985]; Economic Analysis of the Proposed Revisions to the OSHA Asbestos Standards for Construction and General Industry, also by CONSAD [CONSAD, 1990]; OSHA's 1986 final asbestos regulatory impact analysis [OSHA, 1986]; and OSHA's regulatory analysis of the excursion limit [OSHA, 1988].

Average exposures and the range of exposures reported in CONSAD [CONSAD, 1985, 1990] and OSHA

[1986] were developed from a review of the record for the rulemaking proceeding that led to promulgation of the current OSHA asbestos standard. Baseline exposures described in the literature and reported by CONSAD in 1985 generally reflected the use of minimal engineering controls and the virtual absence of respiratory protection. These baseline exposures were reported by OSHA in its 1986 RIA and served to establish baseline risk estimates for affected workers prior to compliance with the final standard promulgated in 1986. In its 1986 RIA, OSHA assumed that the controls implied by compliance with the 1986 standard would result in specified rates of effectiveness and would lead to benefits in preventable cancers.

In this final RIA for the revised asbestos standard, OSHA developed an exposure profile for affected occupational groups using representative data from the 1986 RIA, from CONSAD reports [1985, 1990] and from the rulemaking record. For each affected sector, OSHA estimated baseline exposures using the following assumptions: (1) Where reasonable and appropriate, engineering controls and work practices assigned in the 1986 RIA were assumed to be in current use; (2) where engineering controls and work practices were not sufficient to reduce maximum exposures to a PEL of 0.2 f/cc and an excursion level of 1.0 f/cc, OSHA assumed that the least-cost respiratory protection would be applied. OSHA's baseline exposure profile for this revision to the asbestos standard thus reflects industry application of controls, work practices and respirators to achieve permissible limits established under the OSHA 1986 and 1988 rulemakings.

Table 5 presents average baseline exposure levels for general industry and shipyards and Table 6 presents average baseline exposure levels for construction. Tables 5 and 6, in addition, show average baseline exposure levels in the absence of respiratory protection and other primary controls and work practices (Column 2 in Table 5, Column 3 in Table 6), taken from representative data in the rulemaking record (see [CONSAD, 1985] and [CONSAD, 1984]). Also shown in Table 6 are representative exposure levels (Column 4) in the absence of respiratory protection. Fiber levels prior to respirator use were estimated by applying, to potential mean exposure levels (Column 3), protection factors for wet methods, glove bags and other controls judged currently in use, at hypothetical application levels of 100 percent.

Mean exposures in nearly all sectors are estimated to be at or below the current PEL and excursion limit, consistent with the assumptions in the 1986 RIA and 1988 excursion limit analysis of 100 percent compliance with the final standards. For most of the sectors presented in the tables, OSHA's estimated current exposure levels were determined by applying, to baseline exposures in the absence of controls, protection factors ranging from 10 to 1000, adjusted to reflect current application of controls. In that real-world application of engineering controls and work practices is under 100 percent in nearly all asbestos construction sectors, mean current exposure levels (Column 5) can exceed representative (hypothetical) fiber levels absent respirators (Column 4).

Also shown in Tables 5 and 6 are OSHA's estimated exposure levels following the final revision to the standard. OSHA projected exposure levels for each affected General Industry, Shipyards, and Construction activity by applying protection factors to average baseline exposures. OSHA calculated protection factors for each activity by assuming that controls have a *multiplicative effect* in reducing exposures, that is, the cumulative protection provided by a set of controls is the *product* of individual protection factors. OSHA assigned protection factors to all significant controls and calculated cumulative protection factors for all affected sectors. Cumulative protection factors were then applied to baseline exposures in order to determine exposures resulting from compliance with the final revised standard. As shown in Column 3 in Table 5 and in Column 5 in Table 6, projected exposures are quite low (some below the level of detection), commensurate with the high degree of protection provided by the controls required by, or, in some cases, implied by the revised standard.

Estimates of Cancers Prevented, by Industry

Benefits to workers in direct contact with asbestos. Tables 5 and 6 present OSHA's estimated annual benefits to employees affected by the revised standard. Quantified benefits represent the total of avoided cases of death from lung cancers, mesothelioma, and gastrointestinal cancers. In general industry and shipyards, OSHA projects that wider use of engineering controls, work practices and respiratory protection will result in 2.1 avoided cancer deaths. In construction, expected benefits total 40.5 avoided cancers. Of these total avoided deaths resulting from compliance with the revised construction standard, 26.3 deaths will be avoided through protection of personnel directly exposed to asbestos-containing material. However, OSHA's analysis does not quantify benefits among those workers that may be secondarily exposed while present at sites where asbestos work is being done. Among workers secondarily exposed are construction tradespersons—for example, plumbers, electricians, and ceiling tile installers—whose activities can be complementary to, or immediately succeed, asbestos work. Since OSHA's revised asbestos standard will reduce ambient asbestos levels at these sites, any exposure among these workers would also be reduced.

In custodial work in industrial buildings and in commercial and residential buildings, where 13.5 avoided cancers are projected, estimated baseline average exposures (0.046 f/cc) lie below the revised PEL and are derived from data in the asbestos exposure literature [Wickman, et al. 1992]. OSHA's estimate of current exposures to custodians and other building service workers recognizes that these workers may not be receiving the protection afforded other "construction" workers who encounter asbestos on a more frequent basis. Service workers may, in fact, at times be exposed to asbestos at levels exceeding the current PEL and excursion limit. OSHA believes that employees performing custodial duties such as cleaning, sweeping, dusting, vacuuming and floor maintenance presently receive minimal protection from asbestos exposure. This revised asbestos standard explicitly addresses risks to employees performing custodial tasks; consequently, in this final analysis OSHA examined the occupational risks and estimated the expected benefits to service workers in industrial, commercial and residential buildings.

Long-term exposures to building occupants. Data from the asbestos exposure literature reveal that ambient outdoor exposures to asbestos are quite low, averaging roughly 0.00007 f/cc. Regarding indoor exposures, the Health Effects Institute—Asbestos Research reports that for 1,377 air samples from 198 different buildings with asbestos-containing materials (ACM), mean exposures were on the order of 0.00027 f/cc, with 90th and 95th percentiles of 0.0007 f/cc and 0.0014 f/cc [HEI–AR, 1991].

The HEI–AR report indicates that improper handling of asbestos fibers can contribute significantly to higher exposure levels to building occupants, even after completion of all asbestos

removal jobs at a building. Of 18 building projects where interior perimeter samples were taken, asbestos levels increased in 12 buildings after abatement. The higher exposures were attributed to leakages in glove bags and improper work practices. While the effect of these removal efforts on exposures varied widely, some exposures increased by a factor of 750 [HEI–AR, 1991, p. 5–30]. In at least one case, a building with previously non-detectable asbestos levels later was found to have detectable levels of airborne asbestos.

OSHA believes that the controls mandated by the standard—such as negative pressure enclosures, wet methods, critical barriers, and HEPA vacuums, to name a few of the more protective controls—not only should help lower exposures to employees working in and around them, but should also be nearly 100 percent effective in preventing migration of stray asbestos. Controls required by the revised standard are therefore expected to enhance protection of service workers and building occupants. While any building owner can choose to have ACM removed from a property, owners of buildings with higher concentrations of asbestos, and therefore greater exposure potential for building employees and occupants, are relatively more likely to opt for removal.

Low-level asbestos concentrations can become elevated and remain elevated for long periods of time, as residual asbestos is disturbed. Recent long-term data suggest that after a year's time, exposure levels cease to fall and may actually rise [Wall Street Journal, 1993]. If new asbestos fibers are continually introduced to the general building environment, background asbestos levels could remain elevated and potentially increase.

Based on the Environmental Protection Agency's 1984 survey of buildings [EPA, 1984], OSHA estimates that approximately 156 million maintenance and custodial projects occur annually in 648,000 commercial and residential buildings in which friable asbestos may be disturbed [OSHA, 1994]. Buildings containing friable asbestos constitute less than 20 percent of all buildings with asbestos-containing materials and are believed to have the highest exposure levels. Applying data from the Energy department and Census bureau, OSHA estimates that an average of 18 employees per building are at risk annually from stray asbestos exposures in commercial buildings with friable asbestos, yielding an estimated total population of 11.7 million employees (648,000 buildings x 18 employees per building) [Dept. of Energy, 1986; Dept. of Commerce, 1993]. In this analysis OSHA assumed, based on data from HEI–AR on the distribution of asbestos exposures in public buildings, that higher-risk buildings have a mean current baseline exposure of 0.0014 f/cc (95th percentile of HEI–AR data), in the absence of OSHA-mandated controls. OSHA further assumed that the use of OSHA controls would lower mean background asbestos exposures to levels (0.00035 f/cc) projected by OSHA for custodial workers. Applying these exposure levels to the asbestos risk model, OSHA estimated that 14.2 cancers would be prevented annually among building occupants. It should be noted that this estimate is based solely on exposures to *employees* working in commercial and residential buildings and does not include exposures to *residents* and *other non-employees*, such as students, who may also be exposed while in these buildings.

Other Health Benefits

Asbestosis. Applying pre- and post-regulation exposures to the asbestosis risk model detailed in the 1986 RIA, OSHA estimates that compliance with the revised final rule will prevent approximately 14 cases of disabling asbestosis annually, among workers directly exposed to asbestos in general industry, shipyards, and construction. In addition, non-quantified benefits of avoided cases of asbestosis are anticipated for building occupants and others secondarily exposed. As these cases represent disabilities and not deaths, they are not included in the total estimated benefits. Asbestosis cases often lead to tremendous societal costs in terms of health care, worker productivity, and in the quality of life to the affected individual. Their prevention, therefore, would have a positive economic effect.

Reduction of solvent exposures. Presently, approximately 25 percent of auto service establishments rely upon solvent sprays to control asbestos exposure. The most commonly used solvent has been 1–1–1 trichloroethane, a neurotoxin. OSHA attempted to establish a short-term exposure limit for this substance in the 1989 Air Contaminants rulemaking [54 FR 2333], but that rulemaking was stayed by the courts for technical reasons. The revision to the final asbestos rule, by discouraging the use of solvent spray as a control method, will prevent peak trichloroethane exposures to over 150,000 workers. Moreover, 1–1–1 trichloroethane, a chlorofluorocarbon, has been linked with depletion of the ozone layer, thereby possibly contributing to development of skin cancers. Partly as a result of this, some automotive service establishments have switched to a spray based on perchloroethylene, a flammable carcinogen. OSHA believes that as these establishments select control technologies that are feasible alternatives to solvent spray, there will be reduced risks of cancer and fires (from rags contaminated with solvent) as a consequence of the revision to the standard.

Economic Benefits

Building reoccupation. Significant economic benefits may be derived from lowering asbestos exposures to long-term building occupants. The more rapidly that building owners, whether private or public, can put their asbestos-contaminated building areas back into use, the sooner they can derive explicit or implicit "rental" value. For example, the HEI–AR report discusses an asbestos abatement job at a college building with pre-abatement exposure levels of 0.0002 f/cc [HEI–AR, 1991, p. 5–37]. Shortly after abatement, exposure levels of 0.065 f/cc were measured. After 26 weeks, exposure levels were measured at 0.0008 f/cc. Reoccupation occurred after 35 weeks, when exposures had decreased to 0.0004 f/cc. In this example, the building was not deemed usable for eight months, until exposures began to approach pre-abatement levels.

EPA's asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) require that asbestos be lowered to specified levels (although not as low as pre-abatement levels) before certain buildings can be reoccupied. These requirements have been built into many asbestos abatement contracts for liability reasons. OSHA calculated, as a hypothetical example, that if reoccupation of portions of 5,000 office buildings, with an annual rental value of $100,000 each, were delayed for 6 months in order for asbestos levels to settle, there would be a deadweight economic loss of $250 million to building owners and society.

Asbestos liability savings. As discussed in the section on *REGULATORY AND NON-REGULATORY ALTERNATIVES*, asbestos liability has become a major area of tort litigation. Roughly $8 billion has been spent on asbestos litigation in the last decade [Wall Street Journal, 1992; OSHA, 1986]. The dollar amount of awards has exploded in the last decade. Industry observers forecast that up to $80 billion will be spent on asbestos abatement over the next 20

years, largely as a result of a fear of lawsuits [Wall Street Journal, 1992].

Building owners commission asbestos removal in an attempt to eliminate, or at least reduce, the probability of future lawsuits. Although the likelihood of future lawsuits is uncertain, building owners presumably calculate that the "expected" cost of such lawsuits would run over $4 billion a year, on average (using the 20-year forecast given above). If an individual building owner spends $50,000 to remove the asbestos from a building to avert potential future lawsuits, the owner may be implicitly calculating that such an expenditure will effectively eliminate a 5 percent chance that the owner will have to pay out over $1 million in a lawsuit.

Unfortunately, the evidence suggests that such attempts to reduce the probability of lawsuits, in the absence of proper protections, may be in vain. As discussed elsewhere in this *BENEFITS* section, recent evidence suggests that such removal attempts, in the absence of proper protections, may actually *increase* building occupants' exposure to asbestos. Ultimately, exposure to asbestos is the impetus for lawsuits. While it might be arguable, from an exposure standpoint, that the building owner's most economical choice would be to encapsulate existing asbestos, the path of minimizing liability is driving many building owners to actually remove the asbestos. It appears that successful avoidance of liability is guaranteed only by taking all feasible measures to minimize exposures to occupants during removal. Thus, spending an additional $5,000 for worker health to complete a $50,000 removal operation could ultimately prevent a $1 million lawsuit.

This analysis suggests, then, that the asbestos standard's requirements for engineering controls and work practices, including the use of negative pressure enclosures and other isolation efforts, if successful in averting lawsuits, would have a market value of upwards of $4 billion a year (the minimum value of averting lawsuits). Note that *there need not actually be* over $4 billion a year in lawsuits; the market behavior of owners willing to pay for asbestos abatement simply reflects the market value to those owners of minimizing the likelihood of lawsuits, in effect acting as a type of insurance policy. Moreover, as discussed above, it is not necessary that such efforts be 100 percent successful in preventing lawsuits—the estimated effectiveness in reducing the probability or value of potential lawsuits possesses considerable value. Additionally, it is not necessary that such controls dramatically reduce exposures to building occupants, although OSHA's analysis indicates that they will, as long as it is established that all feasible measures were taken to minimize asbestos exposures to building occupants so that owner negligence cannot be the grounds of a lawsuit. If instituting the asbestos controls mandated by the OSHA standard were only marginally effective in reducing the probability of lawsuits, say by 10 percent, the use of these preventative measures would still possess a value of over $400 million.

Finally, asbestos removal efforts reflect concern over liability claims from building occupants, and perhaps custodians and maintenance personnel. It does not include the value of prevented claims from workers who must remove the asbestos. The revised asbestos standard *eliminates significant risk to the extent feasible,* as defined by law, and thereby minimizes secondary liability created by attempts to minimize primary liability.

E. Technological Feasibility and Compliance Costs

This section examines the technological feasibility and estimated costs of compliance for the final revised asbestos standard.

Technological Feasibility

General industry. OSHA's 1986 Regulatory Impact Analysis [OSHA, 1986] described in detail the controls that would be necessary in order to achieve a PEL of 0.2 f/cc in each of the affected sectors in general industry. OSHA determined that compliance with the 0.2 f/cc PEL was feasible through the use of wet methods, engineering controls, and housekeeping practices. In addition, for the following operations compliance with the PEL of 0.2 f/cc was generally not achievable without the use of respirators: the dry mechanical process in A/C pipe manufacturing and the dry mechanical, wet mechanical, and nuclear ripout processes in ship repair. Compliance with the 1.0 f/cc excursion limit promulgated in the 1988 rulemaking was also expected to lead to occasional respirator use in high-exposure activities throughout primary and secondary manufacturing [OSHA, 1988].

For the revised PEL of 0.1 f/cc, some manufacturing operations will need to supplement engineering controls and work practices with respiratory protection. In all, 2,345 workers (or less than 1 percent of the 682,685 workers exposed in all affected industry sectors) in general industry are expected to need respirators at least part of the workday in order to maintain exposures below the revised PEL. Since all affected employers in general industry will be able to comply with the proposed PEL through the use of engineering controls or, where necessary, respirators, OSHA concludes that the proposed PEL is technologically feasible.

In addition to respirators, ancillary controls will also be needed in affected industry/process groups as a result of the lowering of the PEL. These controls include:

- Regulated areas;
- Disposable protective clothing and gloves;
- Changerooms and lockers;
- Shower rooms;
- Lunch areas; and
- Annual update of the written compliance program.

All ancillary controls required by the revised general industry standard are currently in extensive use throughout industry and are therefore technologically feasible.

Paragraph (k)(7) Care of asbestos-containing flooring material, prohibits for the first time, sanding and high-speed (greater than 300 RPM) stripping of floor material. This new housekeeping paragraph also requires that burnishing and dry buffing of asbestos-containing flooring be performed only when a finish on the flooring is sufficient to prevent contact with ACM. Evidence from the record indicates that many building maintenance personnel are currently meeting these requirements (Tr. 2/7/91 at 4256–4270, Ex. 7–91). Therefore, new Paragraph (k)(7) is technologically feasible.

Lastly, the final revision to the current standard requires certain engineering controls and work practices for brake and clutch repair and services. These requirements include the mandatory use of a negative pressure enclosure/HEPA vacuum method, a low pressure/wet cleaning method, or an alternate method capable of reducing exposure levels to or below levels achieved by the enclosure/HEPA vacuum method. Brake shops performing fewer than six brake or clutch repair jobs per week are permitted to use Method [D] Wet Methods in revised Appendix F of 1910.1001. According to the National Automobile Dealers Association, both the enclosure/HEPA vacuum method and the low pressure/wet cleaning method are currently in use throughout the automotive brake and clutch repair industry (Ex. 7–104); therefore, the revised control requirements for brake and clutch repair are judged by OSHA to be technological feasible.

Construction. The evaluation of technological feasibility in construction

focused on the various combinations of engineering controls, work practices, and respiratory protection necessary to reduce current exposures to achieve compliance with the final PEL of 0.1 f/cc. In addition, OSHA examined a number of engineering controls, work practices, and ancillary requirements which will directly and indirectly contribute to reducing employee exposures. Exposures to asbestos in the construction industry were classified into six activity categories:

- *New construction*—including the installation of asbestos/cement (A/C) pipe and sheet. New construction falls under Class III asbestos work as defined in the revised asbestos standard.
- *Asbestos abatement*—including both asbestos removal and encapsulation with a polymeric coating, or enclosure. Asbestos abatement falls under asbestos work Classes I and III as defined in the revised standard.
- *Demolition*—involving asbestos removal prior to the demolition of all or part of a building or industrial facility that contains asbestos materials. Demolition falls under asbestos work Class I as defined in the revised standard.
- *General building renovation and remodeling*—including drywall demolition involving the removal of pipe and boiler insulation, fireproofing, drywall tape and spackling, acoustical plasters, transite panels, built-up roofing and flooring products. Renovation and remodeling generally involve contact with generic building materials and would therefore fall under asbestos work Class II as defined in the revised standard.
- *Routine facility maintenance in commercial/residential buildings and in general industry*—including maintenance and repair activities involving disturbance of asbestos materials and products (for example, repair of leaking steam pipes, ceiling tiles, roofing, drywall, or flooring; or adjustment of HVAC equipment above suspended ceilings). Routine maintenance falls under Class III asbestos work as defined in the revised standard when asbestos-containing materials (ACM) are disturbed during the maintenance activity; and under Class IV asbestos work as defined in the revised standard when maintenance involves minor, incidental contact with ACM.
- *Custodial Work*—including sweeping, dusting and other housekeeping duties that occasionally expose building maintenance and custodial personnel to asbestos. Custodial work falls under Class IV asbestos work as defined in the revised standard.

To support the regulatory impact analysis for the 1986 asbestos standard, CONSAD derived baseline exposure levels for each construction activity from a database that included personal and area air samples, OSHA inspection reports, expert testimony, and various published reports [CONSAD, 1990]. The technological feasibility assessments for this final revised standard were influenced by expected exposure reduction following the promulgation of the 1986 asbestos standard, and by a review of the literature, including submittals to the OSHA docket (H–033e).

OSHA determined in 1986 that, for a variety of construction activities, it was feasible to reach the current PEL of 0.2 f/cc through the use of available engineering controls and work practices (i.e., without the need for respiratory protection). These construction activities included:

- Asbestos/cement (A/C) pipe installation;
- Asbestos/cement (A/C) sheet installation;
- Floor products installation;
- Plumbing repairs in commercial/residential buildings;
- Floor repairs in commercial/residential buildings;
- Gasket removal and installation in general industry; and
- Pipe insulation repairs in general industry.

For the remaining activities, respiratory protection was necessary in order to reach the current PEL of 0.2 f/cc. OSHA assumed that employers would choose the most cost-effective approach and supply their workers with half-mask supplied-air respirators (or full-facepiece supplied-air respirators for asbestos removal projects) in order to eliminate the need for exposure monitoring [OSHA, 1986]. Thus, in the 1986 RIA, OSHA assumed that workers in many higher-risk construction activities would be provided supplied-air respirators.

OSHA now believes that the prior analytical assumption of widespread use of supplied-air respirators may not be consistent with field experience. OSHA believes that supplied-air respirators are used in many construction activities—particularly removal and demolition, where exposures tend to be highest. For other construction activities where peak exposures are generally lower and episodic, many abatement and maintenance personnel appear to be complying with the current standard using a combination of engineering controls, work practices and lighter respirators.

Construction employers also appear to meet the requirements for daily monitoring (1926.58(f)(3) in the current standard) by compiling historical exposure data documenting compliance with the current OSHA PEL during representative projects. OSHA anticipates that some construction employers will meet the requirements of revised Paragraph (f) Exposure assessments and monitoring, through the use of selective initial monitoring to establish an historical exposure data record, which can form the basis for achieving all necessary requirements of the standard. Where exposures may exceed levels documented by objective data, additional respiratory protection may be necessary, and is judged by OSHA to be technologically feasible based on field experience and information in the rulemaking record [Corn, 1992; HEI–AR, 1992].

As in the standard for general industry, OSHA is proposing the prohibition of high-speed sanding and the use of highly abrasive pads during asbestos floor tile work. In CONSAD's 1985 study [CONSAD 1985] and in OSHA's 1986 RIA [OSHA, 1986], exposures during floor tile installation, removal, and sanding were reported to be generally below 0.2 f/cc when the recommendations of the Resilient Floor Covering Institute were followed. These recommended practices included wet sweeping and handling, and the prohibition of power sanding and blowing asbestos dust. OSHA estimated current exposures in floor repair at 0.024 f/cc under the assumption that the Institute's recommended practices have been adopted by a majority of establishments. Therefore, the prohibition of high-speed sanding in the current proposal is not expected to significantly affect floor repair.

With the final PEL of 0.1 f/cc, additional respiratory protection may be necessary. Specifically, some projects involving A/C pipe installation, A/C sheet installation, floor removal, floor repair, large-scale gasket removal, pipe repair, and custodial work in industrial, commercial and residential buildings would require the use of half-mask respirators to meet the revised PEL. In addition, drywall demolition projects may need to upgrade their respiratory protection to full-facepiece negative-pressure respirators to meet the lower permissible exposure limit.

Assessing current respirator usage and predicted demand under the revised standard, OSHA concludes that nearly all construction activities will require respiratory protection during at least part of the project-day in order to comply with the 0.1 f/cc PEL. Based on the lower-bound exposure estimates provided in the literature and reported in CONSAD [CONSAD, 1990, 1985], it appears that a variety of routine maintenance activities and some abatement jobs may be able to achieve the proposed PEL of 0.1 f/cc without respirators. From its analysis of current exposures, OSHA anticipates that only in small-scale gasket removal and installation will respiratory protection not be necessary for most project-days.

The other incremental controls necessary to comply with OSHA's final asbestos standard, include (depending upon the construction activity):

- HEPA vacuums or HEPA vacuum/ventilation systems;
- Wet methods;
- Glove bags;
- Regulated areas (air-tight or demarcated with caution signs);
- Critical barriers;
- Protective disposable clothing;
- Impermeable drop cloths;
- Decontamination area (adjacent to regulated area or remote showers and changerooms);
- Lunch areas;
- Competent person supervision;
- Training;
- Medical exams;
- Recordkeeping (exposure assessment, medical exams and training);
- Notification of building owners and employees by contractors;
- Notification of contractors and building occupants by building owners;

Based on information in the record and in OSHA's inspection files, OSHA observes that many construction employers currently apply these controls in varied combinations and at varied levels of utilization. OSHA estimated that for construction employers, rates of current compliance range from roughly 20 percent to 80 percent, depending on the control requirement and construction activity. Therefore, OSHA believes all controls are technologically feasible for the appropriate construction activities. In conclusion, therefore, OSHA projects that the final revisions to the asbestos construction standard will be technologically feasible because all of the provisions, including the lowered PEL, can be met using existing engineering controls, respiratory protection and work practices.

Shipyards. Historically, exposure to asbestos in shipyards took place during shipbuilding and ship repair. At present, the majority of asbestos activity aboard maritime vessels involves repair and maintenance of machinery and plumbing with asbestos insulation. In this final rulemaking, the revised asbestos standard for shipyards, § 1915.1001, applies most of the requirements given in the revised asbestos construction standard.

For the two main shipyard activities affected by the revised asbestos standard—wet removal/repair and dry removal/repair—comment in the record [Ex. 7–77, Ex. 7–85] suggests that employers are able to achieve the revised PEL of 0.1 f/cc through the use of engineering controls and, where necessary, respiratory protection. The OSHA Shipyard Employment Standards Advisory Committee [Ex. 7–77] commented that on many shipyard projects, exposure levels have been reduced to levels considerably below the revised PEL. Moreover, to a large extent employers appear to be currently applying the ancillary controls and work practices required in the revised construction standard (and applied to the revised shipyard standard) [Ex. 9–23]. Therefore, on the basis of evidence in the record, OSHA believes the revised shipyard standard is technologically feasible.

Compliance Costs

OSHA estimated the costs of complying with the final revisions to the asbestos standard for general industry, construction and shipyards. OSHA's cost assumptions and methodologies are based upon an OSHA/CONSAD technical analysis of the final rule [OSHA, 1994]; OSHA's PRIA [OSHA, 1990]; CONSAD's final report supporting the PRIA [1990]; the rulemaking record; and previous regulatory analyses performed by OSHA [OSHA, 1986], CONSAD [CONSAD, 1985] and Research Triangle Institute [RTI, 1985].

Cost data for control mechanisms were obtained from published price lists of equipment suppliers and from other information collected by OSHA and CONSAD. Wage data were taken from the U.S. Department of Labor's Bureau of Labor Statistics' *Employment and Earnings* (BLS, 1993a) and *Employment Cost Indexes and Levels* (BLS, 1993b). Unit costs are expressed, as appropriate, on a per-establishment, -crew, -project, -worker, project-day, and worker-day basis, using industry profile data presented in the OSHA/CONSAD technical analysis [OSHA, 1994] and in CONSAD's prior analyses [CONSAD, 1990, 1985].

To derive estimates of the annual incremental compliance costs for the revised asbestos standard, the estimated unit cost factors for the controls were multiplied by the estimated number of required control resources. In order to develop net annual compliance cost estimates, these gross annual cost estimates were then adjusted using estimates of current application of controls. Costs were estimated on an annual basis, with total annual costs calculated as the sum of annualized initial costs and annual recurring costs. Initial costs were annualized over the service life of the equipment or administrative activity, at a discount rate of 10 percent.

The section below presents the estimated costs to general industry, followed by the costs to construction and to shipyards.

General industry. In developing the annual compliance cost estimates for general industry, unit cost estimates were first developed for each of the control practices and ancillary measures required by the revised standard for each of the industry/process groups affected by the proposed standard. The annual compliance costs for each affected industry/process group were then computed by combining the unit cost data with the number of units of each type of control practice needed per year to achieve compliance with OSHA's proposed standard. Compliance costs were also adjusted to reflect current compliance with the required control practices.

Manufacturing. The industry/process groups in manufacturing with exposures above the revised PEL of 0.1 f/cc will require the implementation of a set of uniform control practices, including written compliance programs, regulated areas, respirators (including the respirator unit, accessories, fit testing and cleaning), disposable protective clothing and gloves, change rooms and lockers, shower rooms, and lunch rooms. Other controls, while necessary for compliance with the revised standard, are also required by the current asbestos standard and, thus, will not create an incremental burden. Controls assumed by OSHA to be currently in place include periodic monitoring; prescribed methods of compliance; employee information and training; medical surveillance; and recordkeeping.

The revised asbestos standard for general industry imposes new communication requirements for building and facility owners. In particular, under Paragraph (j)(2)(ii), owners are required to maintain records of information concerning the presence, location and quantity of asbestos-containing material (ACM) and presumed asbestos-containing material (PACM). Under Paragraph (j)(2)(iii), owners of buildings and facilities are required to inform employers of employees who perform housekeeping activities in the presence of ACM or PACM of the presence and location of the ACM or PACM in the area. In this regulatory analysis OSHA treats housekeeping and custodial activities in general industry as construction activities. OSHA's estimated compliance costs for information requirements pertaining to housekeeping/custodial activities are discussed below in the section on

compliance costs for the revised construction standard.

Brake and clutch repair. As in the existing OSHA asbestos standard for general industry, automotive repair work is regulated in revised § 1910.1001. In Paragraph (f)(3) employers performing six or more brake or clutch jobs per week are required to use a negative pressure enclosure/HEPA vacuum method, a low pressure/wet cleaning method, or an alternate method proven to achieve results equivalent to those for the enclosure/HEPA vacuum method. OSHA assessed the extent to which control practices are being applied during brake and clutch repair in the automotive services industry and identified the additional resources needed to reach full compliance with the revised standard.

Based on OSHA's and CONSAD's assessment of current industry practice, OSHA believes that only a small fraction of auto repair shops perform fewer than six brake or clutch inspections per week [OSHA, 1994]. Thus, OSHA anticipates that few shops will qualify for the exemption from engineering controls mandated in revised Appendix F. OSHA and CONSAD [OSHA, 1994] estimate that 65 percent of brake shops currently use wet methods and solvent spray systems during brake and clutch work. Under the revised standard, these shops would have to switch to one of the fiber control methods permitted in Appendix F.

For this cost analysis, OSHA assumed most of the shops currently not in compliance with the revised rule, will adopt the low pressure/wet cleaning method as the least expensive option permitted in the revised standard. OSHA estimates that incremental expenditures for equipment, supplies and labor time will total $11.2 million per year.

Comment in the record [Ex. L162–61] points to the potential for substantial cost offsets from use of the low pressure/wet cleaning method. These cost offsets include the reduced need for solvent; reductions in costs associated with housekeeping and with laundering and disposal of contaminated rags and other articles; and improved operating efficiencies. Because of potential cost savings, use of the low pressure/wet cleaning method has grown in recent years. Moreover, concern over the effect of 1–1–1 trichloroethane on the ozone layer has led to a phase-out of the solvent, forcing brake shops to discontinue use of the solvent spray method. Of concern to occupational health specialists is the regular use of solvents among a workforce with minimal protection from exposures. In sum, OSHA believes that cost offsets and environmental and health concerns combine to mitigate the direct costs facing brake shops who must switch to alternative asbestos control systems.

Current work practices. In addition to work practices in automotive services that meet the revised standard, certain work practices that were required by OSHA's previous standard with a PEL of 2.0 f/cc, and are required by the current standard, as well as by the proposed revisions to the current standard (e.g. wet handling and the collection, disposal, and labeling of wastes in sealed, impermeable bags), are also not identified as additional costs. OSHA believes that wet methods (to the extent that they are feasible), and the use of HEPA vacuums for housekeeping in primary and secondary manufacturing, are already widely in use.

Total costs for general industry. To derive estimates of the annual incremental compliance costs for the industry/process groups affected by the revised general industry standard, the estimated unit cost factors were first multiplied by estimates of the resources necessary to achieve compliance for that industry/process group. These gross annual cost estimates were then adjusted to account for current compliance rates which were first projected in the 1986 RIA [OSHA, 1986] and were modified as a result of compliance with the excursion limit rule in 1988 [OSHA, 1988] and evidence from the rulemaking record.

For each of the manufacturing processes in the affected industries, CONSAD estimated the number of plants with exposures above the revised PEL of 0.1 f/cc (the number of plants needing controls), the number of processes to be controlled, the number of work stations to be controlled, the number of workers directly exposed, worker-days of exposure per year, and the direct worker-hours of exposure per year. These estimates are based on: the number of establishments in each industry sector, determined by CONSAD from information presented in EPA's ban and phase-out rule [ICF, 1988], and from contacts with industry experts; the percentage of processes within plants with exposures above the proposed PEL of 0.1 f/cc and requiring controls; and finally, characteristics concerning the number of processes per plant, work stations per process, workers per work station, and the frequency and duration of each process in these affected industries. The resource estimates used to develop annual compliance costs are developed in detail in [CONSAD, 1990, Table 3.11].

Based on OSHA and CONSAD's analysis [OSHA, 1994; CONSAD, 1990], OSHA estimates that annual costs of compliance in general industry will total $14.8 million. Table 7 presents compliance costs by control practice, for each industry process, for the industry sector as a whole, and for all of general industry. Examining compliance costs by sector, it can be seen that the largest compliance expenditures will be in auto repair ($11.2 million), followed by friction materials ($2.2 million) and coatings and sealants ($1.2 million).

TABLE 7.—ESTIMATED ANNUAL COSTS OF COMPLIANCE FOR GENERAL INDUSTRY SECTORS

Industry/Process groups	Engineering controls	Annual update of written compliance program	Install regulated areas	Half mask cartridge respirator with HEPA filter	Disposable protective clothing/ gloves	Change rooms/ lockers	Shower rooms	Lunch areas	Total annual incremental control costs
Friction Materials:									
All	0	$1,298	$712	$826,124	$676,611	339,772	252,090	111,397	$2,207,954
Introduction	0	325	178	188,578	154,449	77,548	57,544	25,428	504,050
West Mechanical	0	325	178	227,695	186,486	93,634	69,481	30,703	608,501
Dry Mechanical	0	325	178	227,111	186,008	93,394	69,303	30,624	606,942
Other	0	325	178	182,740	149,667	75,147	55,763	24,641	488,460
Gasets and Packings:									
All	0	350	184	72,979	59,771	30,011	22,269	11,086	196,651
Introduction	0	117	61	36,782	30,125	15,125	11,224	5,588	99,021

TABLE 7.—ESTIMATED ANNUAL COSTS OF COMPLIANCE FOR GENERAL INDUSTRY SECTORS—Continued

Industry/Process groups	Engineering controls	Annual update of written compliance program	Install regulated areas	Half mask cartridge respirator with HEPA filter	Disposable protective clothing/ gloves	Change rooms/ lockers	Shower rooms	Lunch areas	Total annual incremental control costs
West Mechanical	0	117	61	13,428	10,998	5,522	4,098	2,040	36,264
Dry Mechanical	0	117	61	22,770	18,649	9,363	6,948	3,459	61,367
Other	0	0	0	0	0	0	0	0	0
Coatings and Sealants:									
All	0	974	565	468,818	383,971	192,789	143,059	24,006	1,214,182
Introduction	0	974	565	468,818	383,971	192,789	143,059	24,006	1,214,182
Other	0	0	0	0	0	0	0	0	0
Plastics:									
All	0	13	5	1,168	956	480	356	149	3,128
Introduction	0	0	0	0	0	0	0	0	0
West Mechanical	0	0	0	0	0	0	0	0	0
Dry Mechanical	0	13	5	1,168	956	480	356	149	3,128
Other	0	0	0	0	0	0	0	0	0
Auto Repair:									
Dry Mechanical	11,165,431	0	0	0	0	0	0	0	11,165,431
Total	11,165,431	2,635	1,465	1,369,090	1,121,309	563,002	417,775	146,639	24,787,345

Source: U.S. Department of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1994

Comparing costs per provision along the bottom row of the table, incremental costs for engineering controls in auto repair represent the leading expenditure. Other controls bearing significant costs are half-mask respirators ($1.4 million), disposable protective clothing and gloves ($1.1 million), change rooms and lockers ($563 thousand), and shower rooms ($418 thousand).

For secondary manufacture of gaskets and packings and secondary auto remanufacturing, where exposures currently are below the revised PEL, OSHA anticipates little or no incremental costs. Therefore, impacts on establishments in these industry groups will be insignificant.

Construction. Within the construction industry, 24 unique activities will come under the scope of the proposed revision. These construction activities are found in new construction, asbestos abatement and building demolition, general building renovation and remodeling, and routine facility maintenance and custodial work in public, commercial, and residential buildings and in general industry. Although the construction activities under consideration in this study will require the implementation of different control practices and/or combinations of these practices, the basic characteristics of available control practices are relatively uniform, and the options for combining control practices in the construction industry and during routine maintenance and repair activities in general industry are limited in number.

The control mechanisms considered in this analysis include:

- Shrouded tools with HEPA vacuums;
- HEPA vacuum/ventilation systems;
- HEPA vacuums;
- Glove bags;
- Critical barriers (including the materials and labor for setting up and taking down;
- Regulated areas;
- Respirators (including the respirator unit, accessories, fit testing, cleaning, and training);
- Disposable protective clothing and gloves;
- Impermeable drop cloths;
- Wet methods (including the sprayer, wetting agent, and labor);
- Decontamination areas (or clean changerooms);
- Lunch areas;
- Training;
- Use of competent person supervision;
- Exposure assessments and monitoring;
- Medical exams;
- Recordkeeping;
- Labeling of installed asbestos products;
- Notification of building owners and employees by contractors; and
- Notification of contractors and building occupants by building owners.

Certain work practices that have been required since OSHA's earlier asbestos standards (e.g., wet handling and the collection and disposal of waste in sealed, impermeable bags) are not included as cost elements.

For each major provision of the revised construction standard, below, OSHA presents cost estimates by type of engineering or administrative control, work practice or personal protective equipment, where appropriate.

(c) Permissible exposure limits. The revised asbestos construction standard lowers the permissible exposure limit from 0.2 fiber per cubic centimeter to 0.1 fiber per cubic centimeter of air as an eight-hour time-weighted average. The revised standard retains the current excursion limit of 1.0 fiber per cubic centimeter of air as averaged over a sampling period of thirty minutes.

After reviewing both (1) the literature on risk to asbestos in the construction industry and (2) the earlier OSHA rulemaking record (Docket H–033c), CONSAD [CONSAD, 1990, Table 2.8] reported representative exposure levels by construction activity that formed the basis of OSHA's risk estimates in the PRIA. CONSAD presented the range of exposure levels in the absence of respiratory protection for each construction activity. From the raw exposure data, OSHA [1986, 1990] developed arithmetic mean estimates, against which the proposed PELs were compared. OSHA then assigned engineering and respiratory controls as required and implied by the earlier rules.

For this final regulatory impact analysis, OSHA adjusted CONSAD's baseline (pre-1986) exposure levels to reflect likely controls applied since OSHA promulgated final asbestos rules in 1986 and 1988. In adjusting exposures from baseline levels, OSHA attempted to represent realistic reductions in fiber levels under a

regulatory regime consisting of a 0.2 f/cc eight-hour PEL, a 0.1 f/cc eight-hour action level, a 1.0 f/cc thirty-minute excursion level, and ancillary controls and procedures. OSHA's adjusted baseline exposures were presented in Section D.

OSHA's revised PEL is expected to lead to wider use of respirators in construction. In particular, OSHA anticipates increased usage of half-mask and full-face cartridge respirators as a result of the revised PEL. For some activities where *average* exposures are projected to be below the PEL due to the use of engineering controls and work practices, respirators may be necessary where peak exposures occur. OSHA conservatively applied half-mask cartridge respirators, with a protection factor of 10, where peak exposures can exceed ten times the revised PEL; OSHA applied full-facepiece cartridge respirators for activities where peak exposures can exceed 50 times the revised PEL. In all, annual respirator costs will total $24.9 million. Included in this total cost are expenditures for the respirator unit, accessories, filters, training (costs assigned under Paragraph (k) Communication of hazards), cleaning and fit testing.

(d) Multi-employer worksites. Revised Paragraph (d) expands upon the current requirement that an employer performing asbestos work in a regulated area inform other employers on the site of the nature of the employer's work with asbestos and the existence of, and rules pertaining to, regulated areas. In addition, Paragraph (d) requires

- Abatement of asbestos hazards by the contractor controlling the source of the contamination—(d)(2)
- Protection of employees adjacent to asbestos worksite—(d)(3)
- Daily assessment by adjacent employers of integrity of enclosures or effectiveness of other control methods relied on by the primary asbestos contractor—(d)(4)
- Supervisory authority by general contractors over the work of the asbestos contractor on the asbestos worksite—(d)(5).

OSHA anticipates significant compliance costs for three of the four additional requirements in the revised paragraph on multi-employer worksites. For provisions (d)(2) and (d)(3), OSHA believes that compliance with the requirements for PELs [Paragraph (c)] and initial exposure assessment [Paragraph (j)] will ensure compliance with these areas. Regarding daily assessment of work areas, required by (d)(4), OSHA considers these duties to fall under the supervision of competent persons. Compliance costs for competent persons are discussed below under Paragraph (o).

For Paragraph (d)(5), OSHA assumes that after promulgation of the revised standard, asbestos contractors will achieve full compliance and, therefore, that general contractors will rarely need to exercise authority over employee protection.

(e) Regulated areas. Paragraph (e) specifies the controls required for construction activities designated as regulated areas. OSHA anticipates incremental costs for all construction work defined in the revised standard as Class I, II or III. Incremental costs for regulated areas will stem from the need for caution and warning signs and caution tape at the perimeter of work areas, as required by (e)(2) Demarcation and (k)(6) Signs. OSHA anticipates total costs of $15.8 million for caution and warning signs.

(f) Exposure assessments and monitoring. Revised Paragraph (f) alters current requirements for initial exposure monitoring, periodic monitoring, termination of monitoring, additional monitoring, employee notification of sampling results, and observation of monitoring. OSHA anticipates that following promulgation of this revised standard, many employers will initially monitor higher-risk sites—under conditions of full application of controls—in order to establish compliance with the revised PEL of 0.1 f/cc. Results from initial monitoring can be used as historical, objective data for compliance purposes, consistent with revised (f)(1)(iii) Negative initial exposure assessment.

To estimate monitoring costs in construction, OSHA assumed—for activities where objective data has not been established—that employers conducting Class I, II or III work, will purchase monitoring equipment, train a supervisor to conduct monitoring, and have three representative exposure samples analyzed by a laboratory. OSHA assumed that employers conducting Class IV activities will hire an outside industrial hygiene technician to monitor workers and collect three exposure samples. Basing cost analysis on these assumptions, OSHA projects total incremental compliance costs of $40.1 million for exposure monitoring.

(g) Methods of Compliance. In revised Paragraph (g) Methods of compliance, OSHA has significantly expanded the structure and content of the regulatory text in the current standard. Revised Paragraph (g) prescribes specific engineering controls and work practices for each of the four asbestos construction classes defined in the standard. To satisfy the requirements for ancillary controls, employers are expected to purchase or otherwise adopt the following types of controls and practices: HEPA vacuum/ventilation systems; HEPA vacuums; wet methods; airtight (negative-pressure) regulated areas; drop cloths; mini enclosures; critical barriers; and glove bag systems (with HEPA vacuums). Included in the cost of each control are expenditures for basic equipment, accessories, construction supplies (for barriers and enclosures), smoke testers (for negative-pressure enclosures), and incremental labor resources needed to implement the control, to smoke test (where necessary) and to disassemble the control.

Incremental compliance costs associated with engineering controls and work practices are anticipated for all construction activities affected by the revised standard. The combination of controls vary by activity, depending on current exposure levels, the extent of current compliance assumed by OSHA, and the construction class (as defined in the revised standard) for the work activity. OSHA projects the following annual compliance costs for methods of compliance:

- HEPA vacuum/ventilation systems—$15.3 million
- HEPA vacuums—$32.5 million
- Wet methods—$55.2 million
- Airtight regulated areas—$2.2 million
- Drop cloths—$13.8 million
- Mini enclosures—$41.6 million
- Critical barriers—$22.2 million
- Glovebag systems—$4.5 million.

(h) Respiratory protection. Revised Paragraph (h) mandates the use of respirators under particular circumstances during asbestos construction work. As prescribed in the standard, respirators must be worn (1) during all Class I work; (2) during all Class III work when TSI or surfacing ACM or PACM is being disturbed; (3) during all Class II and III asbestos jobs where wet methods are not used or where insufficient or inadequate data prevents development of a negative exposure assessment; or (4) in emergencies. For this final regulatory impact analysis, OSHA identified an additional need for respirators in new construction, during removal and repair of flooring products, during routine maintenance in general industry, and during custodial work in industrial, commercial and residential buildings. Respirators were assigned to construction activities where baseline exposure ranges suggested workers would occasionally exceed the revised PEL. Incremental compliance costs for

respirators were presented above under (c) Permissible exposure limits.

(i) Protective clothing. Paragraph (i) in this final rulemaking has been revised such that protective clothing will be required for all Class I activities and in Class III activities where thermal system insulation or surfacing ACM/PACM is being disturbed in which a negative exposure assessment has not been produced, in addition to the requirement that clothing be worn when the PEL or excursion limit (EL) is exceeded. OSHA anticipates an additional need for protective clothing in the following construction activities where workers may occasionally exceed the PEL:

- A/C pipe installation
- A/C sheet installation
- Remove flooring products
- Repair flooring
- Custodial work in industrial buildings
- Custodial work in public, commercial and residential buildings.

OSHA assumes that to provide protective clothing to employees as required by the standard, employers will minimize costs by providing to each employee one set of disposable clothing and gloves for each worker-day. For disposal, clothing can be combined with other contaminated waste and sealed in impermeable bags. Summing incremental costs for protective disposable clothing, OSHA estimates total costs of $17.9 million associated with revised Paragraph (i).

(j) Hygiene facilities and practices for employees. Revised Paragraph (j) provides for decontamination areas, equipment rooms, showers, change rooms, and lunch areas for Class I activities. Class II and Class III activities may conduct decontamination in adjacent areas on impermeable drop cloths, with clothing and equipment cleaned with HEPA vacuums. Decontamination following Class IV activities must be at least as stringent as required for the class of activity within which the Class IV work is being performed.

OSHA anticipates that Class I hygiene requirements will apply for the first time to boiler repair, pipe repair and miscellaneous maintenance in general industry. Annual compliance costs will total $5.5 million for equipment and labor involved with the hygiene facilities in Class I work.

Employers can decontaminate Class II and Class III work using drop cloths and HEPA vacuums, controls required under (g) Methods of compliance. OSHA's estimated costs for drop cloths and HEPA vacuums were presented above in the discussion of revised Paragraph (g).

OSHA assumes that decontamination following Class IV work conducted in regulated areas will be provided by the primary contractor at the job site. Costs for decontamination of Class IV employees, then would be captured by the total decontamination costs for the activity in the regulated area. In addition, OSHA assumed that drop cloths and HEPA vacuums will be needed by custodians following higher-risk activities outside regulated areas. Costs for drop cloths and HEPA vacuums were presented under (g) Methods of compliance, above.

(k) Communication of hazards. Revised Paragraph (k) supplements the existing hazard-communication requirements in the asbestos standard by introducing provisions for notification of building and facility owners, contractors, employees and building occupants of the presence, location and quantity of asbestos-containing material (ACM) or presumed asbestos-containing material (PACM). The final revisions to (k) also include training requirements that mirror the training required under the EPA ASHARA legislation, for employees working around ACM or PACM. Training required under revised Paragraph (k) appears to strengthen the content of training required under existing (k) by explicitly referencing the EPA Model Accreditation Plan (MAP) and Operations and Maintenance (O&M) worker protection training.[5]

For this final regulatory impact analysis, OSHA identified incremental compliance costs for employee training and notifications involving building/facility owners, construction employers, construction employees, and building occupants. For the purpose of cost estimation, OSHA categorized employee training into three groups: (1) Classes I and II, (2) Class III, and (3) Class IV.[6] For each of the three categories of training required by the revised standard, OSHA estimated compliance costs as follows:

- Class I/II—$51.8 million
- Class III—$35.9 million
- Class IV—$22.6 million.

In that OSHA's training requirements parallel the requirements mandated in EPA's MAP regulation, OSHA attributes to the EPA regulation, training costs in this final revision to the OSHA asbestos construction standard.

To estimate compliance costs of the new notification requirements in revised Paragraph (k), OSHA identified seven unique types of notifications. OSHA assumed that notification among affected parties could involve memos, phone calls, notices or other lower-cost means of communication, ranging in labor time from three to five minutes per project. The types of notifications are given below, along with OSHA's estimated total annual compliance cost.

- Notification by contractor to building owner prior to start of project—high-risk ACM—$305 thousand
- Notification by contractor to building owner prior to start of project—low-risk ACM—$5.0 million
- Notification by contractors to employees—$394 thousand
- Notification by contractor to building owner regarding asbestos remaining in building—$397 thousand
- Notification by building owner to building occupants—high-risk ACM—$612 thousand
- Notification by building owner to building occupants—low-risk ACM—$22.3 million
- Notification by building owner to all contractors in building—$6.1 million.

In addition to requirements for notification, Paragraph (k)(2)(iii) requires owners to maintain records of all information indicating the presence, location and quantity of ACM and PACM in the building. OSHA estimated recordkeeping costs of $9.7 million to comply with revised (k).

(l) Housekeeping. Paragraph (l) is expanded in this final revision to the asbestos construction standard to include a section on care of asbestos-containing flooring material. Included in the new section are a prohibition on sanding of asbestos-containing material; work practices specifying wet methods for floor stripping and adequate floor finish for burnishing and dry buffing; and a requirement that dusting and dry sweeping be performed with HEPA vacuums. OSHA anticipates incremental compliance costs associated with using wet methods and HEPA vacuums during housekeeping duties. Costs for the use of wet methods during custodial work is included in the total costs for wet methods given under (g), above, and are expected to be $55.2 million. Costs for the use of HEPA vacuums during custodial work is included in the total costs for HEPA vacuums given under (g), above, and are expected to be $32.5 million.

(m) Medical surveillance. Revised Paragraph (m) provides that medical exams be given for all employees whose exposures exceed the PEL or excursion

[5] Revised Paragraph (k) allows employers to substitute—for Class II activities working with generic building materials—training suitable to the removal or disturbance of that category of building material.

[6] Class I training was assumed to require a total of 32 hours, whereas Class II training was assumed to require a total of 24 hours. Total costs for Class I and Class II training are combined in this discussion.

limit for 30 or more days per year, or who are required by the standard to wear negative pressure respirators. For this final RIA, OSHA recognized the extent to which medical exams are currently provided to employees. Therefore, incremental costs were estimated only for employees in those construction activities which previously did not qualify for medical exams but which now appear to meet the qualifications. Activities qualifying for medical exams under the revised standard include the following (along with estimated annual compliance costs):

- A/C pipe installation—$59 thousand
- A/C sheet installation—$61 thousand
- Floor removal—$828 thousand
- Floor repair—$6.5 million
- Large-scale gasket removal in general industry—$702 thousand
- Pipe repair in general industry—$1.9 million.

Estimated compliance costs for Paragraph (m) include costs for medical exams and for recordkeeping. In all, $10.1 million in annual costs for medical surveillance are expected for affected construction activities.

(n) Recordkeeping. Revised Paragraph (n) requires that employers establish and maintain records of objective data (in compliance with (f)), exposure measurements, medical surveillance, and training. Revised Paragraph (n) also provides for availability and transfer of records. Incremental recordkeeping costs for each of these areas were presented above.

(o) Competent person. Paragraph (o) is a new section of the construction standard and provides for competent person training and supervision for Class I, II, and III activities. Consistent with the distinctions among activity classes in (o), OSHA identified two levels of competent person training: Class I/II and Class III. OSHA estimates that costs for annual Class I/II competent person supervision will be $13.5 million; OSHA estimates annual costs of $6.0 million for Class III competent person supervision. OSHA's estimates of competent person training costs are based on an analysis by EPA's contractor Abt Associates [Abt, 1993], of the costs and benefits of the EPA Model Accreditation Plan regulation.

In addition to competent person supervision, the revised standard requires that the person evaluating compliance methods that are alternatives to those in (g) Methods of compliance, be qualified as a project designer [(g)(6)(ii)]. OSHA estimated the costs for training project designers for Class I activities. At an annual cost of $171 thousand, the training burden implied by this requirement is attributed to the EPA MAP regulation, which provides for training of project designers and other competent persons.

Total construction costs. Based on OSHA's preliminary regulatory impact analysis [OSHA, 1990], preliminary analysis by CONSAD [CONSAD, 1990], and cost analysis of the revised standard by OSHA and CONSAD [OSHA, 1994], OSHA estimated total costs of compliance with the revised PEL of 0.1 f/cc and the ancillary requirements pertaining to regulated areas, methods of compliance, respiratory protection, hygiene facilities, communication of hazards and competent person training. The estimated compliance costs, by control requirement, are shown in Table 8 for each major construction sector. OSHA's estimate of total cost, $476.4 million, is the average cost for a range of construction workers potentially at risk in each of the activities affected by the standard (see [CONSAD, 1990, Appendix A] and [OSHA, 1994]). This estimate of incremental costs, however, includes the training costs—for workers, supervisors, project designers and competent persons—that would otherwise be incurred through compliance with the EPA Model Accreditation Plan regulation. Excluding EPA-related training costs, OSHA estimates that $346.5 million in incremental costs are attributed to the OSHA construction standard. Table 9 presents total annual compliance costs by construction activity, for requirements unique to the revised OSHA construction standard.

TABLE 8.—ANNUAL INCREMENTAL COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS STANDARD FOR THE CONSTRUCTION INDUSTRY, BY CONSTRUCTION CATEGORY AND CONTROL REQUIREMENT

[1993 Dollars]

Control requirements	New construction	Asbestos abatement and demolition	Renovation and remodeling	Routine maintenance in public, commercial and residential buildings	Routine maintenance in industrial facilities		Custodial work		Total
					Small	Large	Industrial	Commercial	
Shrouded Tools with HEPA Vacuums	0	0	0	0	0	0	0	0	0
HEPA Vacuum/Ventilation System	0	0	0	6,101,389	1,745,131	7,486,046	0	0	15,332,566
HEPA Vacuums	66,299	0	0	0	0	0	0	32,390,934	32,457,232
Wet Methods	0	231,880	2,915,085	10,345,233	1,108,748	90,855	4,918,735	35,612,096	55,222,631
Regulated Areas (airtight, caution signs)	0	0	0	0	0	2,202,151	0	0	2,202,151
Regulated Areas (caution signs)	15,186	0	590,382	14,799,401	356,074	70,977	0	0	15,832,020
Drop Cloths	5,827	104,631	672,569	12,328,518	485,648	185,059	0	0	13,782,253
Mini Enclosure	0	0	0	18,697,300	22,594,232	330,484	0	0	41,622,016
Critical Barriers	0	217,689	2,334,830	18,579,270	981,128	90,433	0	0	22,203,349
Glove Bag Systems (with HEPA Vacuums)	0	659,397	0	1,595,562	1,089,599	1,162,580	0	0	4,507,137
Glove Boxes (negative pressure)	0	0	0	0	0	0	0	0	0
Water Spray Procedure	0	0	0	0	0	0	0	0	0
Half-Mask Cartridge Respirator with HEPA Filter	216,632	0	5,142,466	4,325,224	-109,150	47,250	657,345	12,590,269	23,088,335
Full-Facepiece Respirator with HEPA Filter	0	0	0	1,813,700	0	0	0	0	1,813,700
Half-Mask Supplied-Air Respirator	0	0	0	0	0	0	0	0	0
Powered Air Purifying Respirator	0	0	0	0	0	0	0	0	0
Full-Facepiece Supplied-Air Respirator	0	0	0	0	0	0	0	0	0

TABLE 8.—ANNUAL INCREMENTAL COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS STANDARD FOR THE CONSTRUCTION INDUSTRY, BY CONSTRUCTION CATEGORY AND CONTROL REQUIREMENT—Continued

[1993 Dollars]

Control requirements	New construction	Asbestos abatement and demolition	Renovation and remodeling	Routine maintenance in public, commercial and residential buildings	Routine maintenance in industrial facilities		Custodial work		Total
					Small	Large	Industrial	Commercial	
Disposable Protective Clothing and Gloves	306,734	0	1,542,240	3,089,621	0	0	1,052,339	11,950,203	17,941,137
Decontamination Area	0	0	0	0	0	5,492,864	0	0	5,492,864
Decontamination Area (remote) (daily trailer rental)	0	0	0	0	0	0	0	0	0
Decontamination Area—O&M	0	0	0	0	0	0	0	0	0
Lunch Areas	0	0	0	0	0	0	0	0	0
Training, Classes I and II	0	8,156,068	39,015,163	0	0	4,632,551	0	0	51,803,782
Training, Class III	730,015	1,765,151	0	20,803,053	11,970,925	604,582	0	0	35,873,727
Training, Class IV	0	0	0	1,909,387	634,756	200,519	3,218,249	16,652,584	22,615,494
Competent Person—Classes I and II	0	336,078	7,676,841	0	4,526,017	922,183	0	0	13,461,119
Competent Person—Project Designer	0	171,383	0	0	0	0	0	0	171,383
Competent Person—Class III	79,518	0	0	5,888,344	0	0	0	0	5,967,862
Exposure Monitoring (initial): Classes I, II and III	60,953	124,351	2,534,806	3,834,764	14,682,484	5,665,859	651,090	0	27,554,307
Class IV	0	0	0	659,296	0	0	0	11,794,913	12,454,209
Exposure Monitoring (additional)	0	0	0	0	0	0	0	0	0
Exposure Monitoring (daily)	0	0	0	0	0	0	0	0	0
Medical Exams	120,243	0	827,712	6,542,885	1,657,783	965,266	0	0	10,113,889
Labelling of installed asbestos products	0	0	0	0	0	0	0	0	0
Notification by Contractor to Building Owner—High-Risk ACM	0	255,474	0	0	0	49,774	0	0	305,247
Notification by Contractor to Building Owner—Low-Risk ACM	2,297	0	128,549	4,748,303	148,207	12,895	0	0	5,040,250
Notification by Contractor to Employees	0	39,777	321,371	0	0	33,313	0	0	394,462
Notification by Contractor to Building Owner	0	39,777	321,371	0	0	35,618	0	0	396,766
Notification by Building Owners to Building Occupants—High-Risk ACM	0	500,611	0	0	0	111,407	0	0	612,018
Notification by Building Owners to Building Occupants—Low-Risk ACM	10,320	35,263	577,646	21,337,003	285,450	65,051	0	0	22,310,735
Notification by Building Owners to All Contractors	2,812	20,853	157,393	5,813,761	77,778	24,152	0	0	6,096,749
Recordkeeping by Building Owners	4,489	33,288	251,245	9,280,442	141,188	31,143	0	0	9,741,794
Totals	1,621,325	12,691,671	65,009,669	172,492,455	62,594,296	30,513,011	10,497,757	120,990,999	476,411,184
Totals Net of EPA-Related Training	811,792	2,262,991	18,317,665	143,891,671	45,462,598	24,153,177	7,279,509	104,338,415	346,517,816

Source: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1994; CONSAD, 1990; and the rulemaking record.

TABLE 9.—NET COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS CONSTRUCTION STANDARD

[By Construction Activity, 1993 Dollars]

Construction activity	Annual cost
New Construction:	
A/C Pipe Installation	$578,189
A/C Sheet Installation	233,602
Abatement and Demolition:	
Removal	1,089,688
Encapsulation	77,611
Demolition	1,095,692
Remodeling and Renovation:	
Drywall Renovation	4,697,904
Remove Roofing Felts & Coatings	436,077
Remove Flooring Products	13,183,683

TABLE 9.—NET COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS CONSTRUCTION STANDARD—Continued

[By Construction Activity, 1993 Dollars]

Construction activity	Annual cost
Routine Maintenance in Public, Commercial, and Residential Buildings:	
Repair ceiling tiles	9,136,115
Repair HV AC/lighting	15,612,401
Other Work/Drop Ceiling	3,937,675
Repair Boiler	16,711,380
Repair Plumbing	21,730,412
Repair Roofing	8,392,722
Repair Drywall	23,276,376
Repair Flooring	45,094,590

TABLE 9.—NET COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS CONSTRUCTION STANDARD—Continued

[By Construction Activity, 1993 Dollars]

Construction activity	Annual cost
Routine Maintenance in Industrial Facilities:	
Remove Gaskets (Small-Scale)	10,490,046
Remove Gaskets (Large-Scale)	2,113,420
Repair Boilers (Small-Scale)	1,307,159
Repair Boilers (Large-Scale)	14,134,324
Repair Pipe (Small-Scale)	3,229,996

TABLE 9.—NET COMPLIANCE COSTS FOR OSHA'S REVISED ASBESTOS CONSTRUCTION STANDARD—Continued

[By Construction Activity, 1993 Dollars]

Construction activity	Annual cost
Repair Pipe (Large-Scale)	2,574,361
Miscellaneous Maintenance (Small-Scale)	22,462,603
Miscellaneous Maintenance (Large-Scale)	4,602,548
Telecommunications Maintenance (Small-Scale)	7,972,794
Telecommunications Maintenance (Large-Scale)	728,523
Custodial Work in Public, Commercial and Residential Buildings	104,338,415
Custodial Work in Industrial Facilities	7,279,509
All Activities	346,517,816

Source: U.S. Department of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1994; CONSAD, 1990; and the rulemaking record.

Shipyards. The revised standard for shipyards largely resembles the revised construction standard. OSHA and CONSAD [OSHA, 1994] identified two shipyard activities—wet removal/repair/installation and dry removal/repair/installation aboard vessels—where significant contact with asbestos can take place. CONSAD's cost analysis assumes asbestos removal will be performed by abatement specialists currently complying with requirements in the existing asbestos general industry standard (under which asbestos contact during shipbuilding and repairing is presently regulated). Specifically, abatement specialists in shipyards are believed to be currently using the following controls at near-100 percent level:

- HEPA vacuums
- Wet methods (where feasible)
- Regulated areas with caution signs
- Respirators (full-facepiece cartridge respirators and full-facepiece supplied-air respirators)
- Disposable protective clothing and gloves
- Decontamination units
- Lunch areas
- Training (General Industry standard)
- Exposure monitoring (daily)
- Medical Exams
- Written compliance plan.

For affected shipyards, OSHA's cost analysis assigned engineering controls and work practices required or implied by the revised asbestos standard. OSHA anticipates incremental costs associated with airtight regulated areas; drop cloths; critical barriers; glove bag systems; worker training and competent person training (Class I); initial exposure monitoring and development of objective data; and notification requirements. In all, OSHA projects annual incremental compliance costs of approximately $229 thousand for the shipbuilding and repairing sector. Of these costs, $137 thousand are associated with training required by the EPA Model Accreditation Plan regulation mandated by the ASHARA legislation. Therefore, net OSHA-related annual costs for ship repair under the revised asbestos standard are expected to total approximately $93 thousand (after rounding). Compliance costs for ship repair are presented in Table 10 by control requirements for affected shipboard activities.

TABLE 10.—ESTIMATED INCREMENTAL COMPLIANCE COSTS FOR AFFECTED SECTORS IN SHIPBUILDING AND REPAIRING

[By Activity and Control Requirement, 1993 Dollars]

	Wet removal with repair and installation	Dry removal with repair and installation	Totals
HEPA Vacuum/Ventilation System	7,236	0	7,236
HEPA Vacuums	0	0	0
Wet Methods	0	0	0
Regulated Areas (airtight, caution signs)	4,294	1,073	5,367
Regulated Areas (caution signs)	0	0	0
Drop Cloths	179	45	224
Critical Barriers	385	96	481
Glove Bag Systems (with HEPA Vacuums)	56,132	13,750	69,882
Respirators	0	0	0
Disposable Protective Clothing and Gloves	0	0	0
Decontamination Areas	0	0	0
Lunch Areas	0	0	0
Training—Class I	105,280	26,270	131,550
Competent Person Training	3,294	0	3,294
Competent Person—Project Designer	1,680	0	1,680
Exposure Monitoring (initial)	8,983	0	8,983
Exposure Monitoring (semi-annual)	0	0	0
Medical exams—Initial and Recurring	0	0	0
Notification by Contractor to Facility Owner—High Risk ACM	89	22	112
Notification by Contractor to Facility Owner—Low-Risk ACM	0	0	0
Notification by Contractor to Employees	15	4	19
Notification by Contractor to Facility Owner	15	4	19
Notification by Facility Owner to Facility Occupants—High-Risk ACM	187	47	234
Notification by Facility Owner to Facility Occupants—Low-Risk ACM	0	0	0
Notification by Facility Owner to Contractors	7	2	9
Recordkeeping by Facility Owner	12	3	15
Totals	187,790	41,316	229,105
Totals Net of EPA—Related Training	77,535	15,046	92,581

Source: U.S. Dept. of Labor, OSHA, Office or Regulatory Analysis, based on OSHA, 1994; OSHA, 1986; and RTI, 1985.

Aggregate incremental compliance costs. As described above, OSHA estimated compliance costs associated with the revised asbestos standard for General Industry, Construction and Shipyards. Total annual costs for each of the three main parts of the asbestos standard are as follows (excluding EPA-related training costs):

- General Industry—$14.8 million
- Construction—$346.5 million
- Shipyards—$93 thousand.

Summing compliance costs across affected sectors, OSHA estimates that annual incremental compliance costs of $361.4 million will result following promulgation of the rule.

The next section applies these estimates of incremental compliance costs for an analysis of the economic impacts of the revised asbestos standard.

F. Economic Impact and Regulatory Flexibility Analysis Introduction

OSHA examined the impacts of compliance costs on payroll, sales and profits for firms in general industry, shipyards and construction affected by the revision to the asbestos standard. OSHA's economic impact analysis is presented below.

Data Sources and Methodology

OSHA used a variety of financial indicators and sources of statistical data to assess the impacts on the affected industries. Payroll data for primary manufacturing industries and real estate industries were taken from *County Business Patterns,* 1990 [Dept. of Commerce, 1993]. Payroll data for construction industries were taken from the *1987 Census of Construction,* [Dept. of Commerce, 1990b]. Data on sales were obtained from Dun and Bradstreet's Marketing Information computer database [Dun and Bradstreet, 1992a] for the following industry groups:

- Primary asbestos manufacturing;
- Automotive repair;
- Shipyards;
- Selected groups in general industry where the disturbance of asbestos during routine maintenance falls under the construction standard;

Selected real estate industries.

Data on net value of construction work (a statistic approximating the sales volume of construction firms) for the construction sector were taken from the *1987 Census of Construction* [Dept. of Commerce, 1990b]. OSHA derived pre-tax profit rates using Dun and Bradstreet post-tax return-on-sales data from Dun's Insight computer database [Dun and Bradstreet, 1992b] and the 1987 tax code. Pre-tax profits were calculated using a formula that contains the marginal corporate tax rates for 1993.

Impacts in General Industry and Shipyards

Primary manufacturing. OSHA has determined that the following four industries in primary manufacturing would be affected by the revision to the asbestos standard: SIC 3292, Friction Materials; SIC 3053, Gaskets and Packings; SIC 2952, Coatings and Sealants; and SIC 3089, Plastics. OSHA has concluded that there will be no incremental costs for the secondary manufacturing industries identified in the preliminary regulatory impact analysis because these manufacturers are believed to have already achieved exposure reductions that bring them into compliance with OSHA's new PEL of 0.1 f/cc.

OSHA compared the incremental compliance costs anticipated for the four affected primary manufacturing industries with three financial indicators: (1) Annual payroll per firm, (2) dollar value of sales per firm and (3) pre-tax profits per firm. The comparison with annual payroll conveys the magnitude of compliance costs relative to labor costs. The comparison with sales provides a measure of the extent to which prices would rise to maintain profit levels if a firm is able to pass 100 percent of incremental costs forward to buyers. If firms, for competitive reasons, are unable to pass costs forward and must instead absorb the full impact internally, pre-tax profits would be expected to fall. The comparison with pre-tax profits thus illustrates the maximum financial impact if the firm absorbs 100 percent of the incremental compliance costs.

Table 11 presents the estimated impact of compliance costs in relation to annual payroll, sales, and pre-tax profits per plant in primary manufacturing. Compliance costs as a percentage of sales are modest, averaging 0.6 percent for affected establishments in primary manufacturing (Column 7). However, as shown in Column 8 in the table, profit impacts are relatively high for two sectors: friction materials (26.2 percent) and gaskets and packings (7.3 percent). For reasons given below, OSHA believes that profit impacts will be minimized by the ability of firms to pass forward costs to consumers. The small increases in product prices (less than 2 percent) necessary to cover the increased costs of production would be unlikely to affect the demand for these products.

TABLE 11.—ESTIMATED ECONOMIC IMPACTS IN GENERAL INDUSTRY AS A RESULT OF THE REVISION TO THE GENERAL INDUSTRY ASBESTOS STANDARD

SIC industry	Incremental cost per plant	Annual payroll per plant	Annual sales per plant	Pre-tax profit rate per plant (percent)	Annual pre-tax profits per plant	Compliance costs as a percent of payroll per plant	Compliance costs as a percent of sales per plant	Compliance costs as a percent of profit per plant
Average Impacts on all Establishments:								
Primary Manufacturing:								
3292 Friction Materials	$88,318	$2,057,964	$5,607,900	[a]6.0	$337,040	4.3	1.6	26.2
3053 Gaskets and Packings	21,800	1,676,355	4,994,641	6.0	297,329	1.3	0.4	7.3
2952 Coatings and Sealants	16,189	1,591,747	6,950,262	5.4	372,085	1.0	0.2	4.4
3089 Plastics	3,128	1,103,931	4,915,434	6.3	308,295	0.3	0.1	1.0
Averages	33,128	1,154,988	4,990,845	6.2	309,953	1.8	0.6	9.6
Impacts on Small Establishments:								
Primary Manufacturing:								
3053 Gaskets and Packings	11,722	285,158	1,035,835	4.7	48,339	4.1	1.1	24.2
2952 Coatings and Sealants	10,275	112,239	1,674,208	4.3	72,207	9.2	0.6	14.2

TABLE 11.—ESTIMATED ECONOMIC IMPACTS IN GENERAL INDUSTRY AS A RESULT OF THE REVISION TO THE GENERAL INDUSTRY ASBESTOS STANDARD—Continued

SIC industry	Incremental cost per plant	Annual payroll per plant	Annual sales per plant	Pre-tax profit rate per plant (percent)	Annual pre-tax profits per plant	Compliance costs as a percent of payroll per plant	Compliance costs as a percent of sales per plant	Compliance costs as a percent of profit per plant
Averages	10,389	226,695	1,266,665	4.5	56,969	8.8	0.7	15.0

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis; Dun and Bradstreet, 1992a, 1992b; U.S. Department of Commerce, 1993.
[a] The profit rate for SIC 3292 was not available in Dun's Insight. Shown in the table is the profit rate for SIC 32, Stone, Clay, Glass, and Concrete Products.

As evidenced by the disappearance of domestic production of various asbestos-based product lines (e.g., A/C pipe and A/C sheet) over the last several years and the dramatic reduction in the production of other products (e.g., asbestos-containing plastics), many former producers and consumers of asbestos are increasingly substituting other materials for asbestos. The market forces behind increased substitution appear to be related to legal issues, such as liability, and regulatory concerns, such as the attempted Environmental Protection Agency asbestos ban, rather than strictly the effect of product substitution. Even when asbestos-based products are much cheaper than non-asbestos-based products, demand and supply are shifting away from asbestos-based products.

Primary manufacturers appear to have the latitude to raise prices on their products in the short run, but may substitute away from asbestos entirely in the long run. In the friction materials industry, substitute products can be difficult to develop, suggesting a limited cross-elasticity of demand that permits costs to be fairly easily passed along to consumers. For other industries, since the substitution of inputs generally occurs at the site of formerly asbestos-based production, any incremental economic impacts from this rule should be minimal.

In accordance with the Regulatory Flexibility Act, OSHA also examined the impacts on small establishments in primary manufacturing to determine if they would be adversely affected by the final standard. Using data for firms with 19 or fewer employees, OSHA compared compliance costs with annual payroll, sales, and pre-tax profits for affected industries identified as containing small establishments. The affected industries include small firms producing asbestos gaskets and packings in SIC 3053, Gaskets, Packing, and Sealing Devices and producing asbestos coatings and sealants in SIC 2952, Asphalt Felts and Coatings. OSHA has determined that there are currently no small producers of asbestos friction materials and asbestos plastics.

Small-firm impacts for primary manufacturing are shown in Table 11. Under a full cost-pass-through scenario, OSHA projects that compliance costs would be 1.1 percent of sales for gaskets and packings and that compliance costs would be 0.6 percent of sales for coatings and sealants. Costs as a percentage of pre-tax profits, shown in the last column of Table 11, are significantly higher, suggesting that severe profit reductions could be felt by any small firms unable to pass forward incremental compliance costs. However, as discussed above, OSHA believes these firms will be able to pass along most of the costs of compliance by raising prices and will therefore suffer minimal economic impact.

Automotive repair. Economic impacts in establishments performing automotive brake and clutch repair, presented in Table 12, are expected to be minor as a result of compliance with the revised standard for general industry. As a percentage of sales, compliance costs average 0.01 percent for industry overall and for affected small establishments. As for the worst-case financial impact, compliance costs as a percentage of profits would average 0.21 percent for all of industry and would average 0.26 percent for small establishments. On the basis of these impact estimates, OSHA has therefore concluded that overall impacts in automotive repair will be modest and that there will be no significant differential effect on small businesses as a result of the final standard.

TABLE 12.—ECONOMIC IMPACTS RESULTING FROM THE REVISION TO THE ASBESTOS STANDARD, FOR ESTABLISHMENTS PERFORMING BRAKE AND CLUTCH REPAIR

SIC industry	Compliance cost per firm	Sales per firm	Pre-tax profit	Pre-tax profit rate (percent)	Compliance costs as a percent of sales	Compliance costs as a percent of profits
Average Impacts on all Establishments:						
Brake and Clutch Repair:						
551 New and Used Car Dealers	$34	$9,577,612	$129,551	1.4	[a] 0.00	0.03
554 Gasoline Service Stations	34	939,870	23,220	2.5	[a] 0.00	0.15
753 Automotive Repair Shops	34	223,065	12,810	5.7	0.02	0.26
Averages	34	1,347,958	27,269	4.4	0.01	0.21
Impacts on Small Establishments:						
Brake and Clutch Repair:						
551 New and Used Car Dealers	34	2,589,089	30,460	1.2	[a] 0.00	0.11

TABLE 12.—ECONOMIC IMPACTS RESULTING FROM THE REVISION TO THE ASBESTOS STANDARD, FOR ESTABLISHMENTS PERFORMING BRAKE AND CLUTCH REPAIR—Continued

SIC industry	Compliance cost per firm	Sales per firm	Pre-tax profit	Pre-tax profit rate (percent)	Compliance costs as a percent of sales	Compliance costs as a percent of profits
554 Gasoline Service Stations	34	669,395	16,538	2.5	0.01	0.21
753 Automotive Repair Shops	34	197,139	11,321	5.7	0.02	0.30
Averages	34	467,607	13,916	4.5	0.01	0.26

Sources: U.S. Dept. of Labor, OSHA, Office or Regulatory Analysis; Dun and Bradstreet 1992a, 1992b; U.S. Department of Commerce, 1993.
*Impacts presented as 0.00% are projected to be below 0.01%.

Ship repair. The impacts of the revision to the asbestos standard on establishments involved in ship repair are expected to be minimal. Table 13 shows that average price impacts would be 0.07 percent for all establishments and would be 0.1 percent for small establishments if firms were able to charge increased operating costs to their customers, i.e., ship owners. At the opposite extreme in terms of potential financial impact, compliance costs as a percentage of profits would average 0.8 percent for firms of all sizes in ship repair and would average 1.2 percent for small firms in ship repair. Thus, OSHA has concluded that there will be no significant differential effect on small businesses involved in ship repair as a result of the final standard.

TABLE 13.—ECONOMIC IMPACTS ON ESTABLISHMENTS PERFORMING SHIP REPAIR AS A RESULT OF THE REVISION TO THE ASBESTOS STANDARD

SIC industry	Compliance cost per firm	Sales per firm	Pre-tax profit	Pre-tax profit rate (percent)	Compliance costs as a percent of sales	Compliance costs as a percent of profits
Average Impacts on All Establishments:						
Ship Repair:						
3731 Shipbuilding and Repair	$12,728	$19,439,148	$1,570,840	8.1	0.07	0.81
Impacts on Small Establishments:						
Ship Repair:						
3731 Shipbuilding and Repair	12,728	12,751,431	1,030,419	8.1	0.10	1.24

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis; Dun and Bradstreet 1992a, 1992b; U.S. Department of Commerce, 1993.

Impacts Associated With the Revised Construction Standard

Impacts in the Construction Industry. OSHA estimated economic impacts in construction using three economic impact measures, calculated for each affected industry group. The first measure is the ratio of the average annual compliance cost per affected establishment (or per exposed construction worker) to an estimate of the average payroll per establishment (or per construction worker). As explained above, this measure compares the projected compliance costs to labor costs normally incurred by the establishment.

The second impact measure is the ratio of the average annual compliance cost per affected establishment (or per exposed construction worker) to an estimate of the net dollar value of construction work or sales for an average establishment (or per construction worker). This ratio indicates the relationship of the compliance costs to an establishment or worker's output and indicates the maximum impact on prices assuming 100 percent pass-through of the compliance costs to the consumer.

The third economic impact statistic calculated by OSHA for construction measures the effect of compliance costs on profits. Profit impacts were calculated at the industry level by dividing into compliance costs per establishment, the estimated pre-tax profit per establishment. This index reveals the maximum potential impact on profits under the assumption that compliance costs are fully absorbed by the affected firm. Profit impacts are particularly meaningful when establishments face highly-competitive conditions which prevent the pass-through of compliance costs to customers.

Annual incremental compliance costs per construction firm were estimated using the costs presented above for new construction; asbestos abatement and demolition; general building renovation; routine maintenance in public, commercial, and residential buildings; and custodial work in public, commercial, residential, and industrial buildings (routine maintenance in industrial facilities is analyzed separately below). Table 14 presents average per-worker and per-firm costs and impacts for all affected construction sectors. Table 15 shows estimated costs and impacts for small establishments in affected construction sectors.

TABLE 14.—AVERAGE ECONOMIC IMPACTS OF THE REVISION TO THE ASBESTOS STANDARD FOR CONSTRUCTION

[All Establishments, by Industry]

SIC	SIC industry	Compliance cost per worker	Compliance cost per worker as a percentage of:		Compliance cost per establishment	Compliance cost per establishment as a percentage of:		
			Construction payroll per worker	Net value of construction work or sales per worker		Construction worker payroll per establishment	Net value of construction work or sales per estab.	Pretax profits per establishment
1623	Heavy Construction, except Highways	$484	2.34	0.53	$1,898	0.55	0.13	2.39
1711	Plumbing, Heating, Air Conditioning	860	3.93	0.91	1,357	0.92	0.21	4.36
1731	Electrical Work	699	2.95	0.82	1,397	0.72	0.20	3.58
1742	Plastering, Drywall, and Insulation	356	1.78	0.51	716	0.29	0.08	1.87
1752	Floor Laying and Floor Work, N.E.C	1,005	5.40	1.03	2,283	2.89	0.55	9.47
1761	Roofing, Siding, and Sheet Metal Work	135	0.81	0.18	324	0.27	0.06	1.21
1795	Wrecking and Demolition Work	25	0.15	0.03	683	0.43	0.10	1.75
1799	Special Trade Contractors, N.E.C	25	0.16	0.04	683	0.70	0.16	2.67
6512	Operators of Nonresidential Buildings	51	0.30	0.05	190	0.21	0.03	0.29
6513	Operators of Apartment Buildings	59	0.35	0.10	220	0.24	0.06	1.15
	Averages	422	1.96	0.48	782	0.55	0.13	2.37

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1994; Dun and Bradstreet, 1992a, 1992b; U.S. Department of Commerce, 1993.

TABLE 15.—ECONOMIC IMPACTS OF THE REVISION TO THE ASBESTOS STANDARD FOR CONSTRUCTION

[Small Establishments, by Industry]

SIC	SIC industry	Compliance cost per worker	Compliance cost per worker as a percentage of:		Compliance cost per establishment	Compliance cost per establishment as a percentage of:		
			Construction payroll per worker	Net value of construction work or sales per worker		Construction worker payroll per establishment	Net value of construction work or sales per estab.	Pre-tax profits per establishment
1623	Heavy Construction, except Highways	$484	2.56	0.52	$667	0.43	0.09	1.75
1711	Plumbing, Heating, Air Conditioning	860	4.81	1.00	723	1.12	0.23	4.78
1731	Electrical Work	699	3.80	0.94	656	0.93	0.23	4.12
1742	Plastering, Drywall, and Insulation	356	2.20	0.53	271	0.36	0.09	1.93
1752	Floor Laying and Floor Work, N.E.C	1,005	2.94	0.52	699	1.57	0.28	4.78
1761	Roofing, Siding, and Sheet Metal Work	135	1.00	0.20	181	0.33	0.07	1.34
1795	Wrecking and Demolition Work	25	0.16	0.03	316	0.46	0.10	1.74
1799	Special Trade Contractors, N.E.C	25	0.18	0.04	427	0.79	0.17	2.74
6512	Operators of Nonresidential Buildings	61	0.37	0.05	128	0.25	0.03	0.33
6513	Operators of Apartment Buildings	68	0.41	0.11	163	0.32	0.07	1.19
	Averages	388	2.17	0.48	386	0.62	0.13	2.41

Sources: U.S. Dept. of Labor, OSHA, Office of Regulatory Analysis, based on OSHA, 1994; Dun and Bradstreet, 1992a, 1992b; U.S. Department of Commerce, 1993.

Based on OSHA and CONSAD's estimates of the number of affected firms, crews, and workers performing each construction activity and the number of projects conducted by each firm in a year [OSHA, 1994], annual costs for establishments of average size are expected to range from $190 per building for SIC 6512, Operators of Nonresidential Buildings to $2,283 per firm in SIC 1752, Floor Laying and Other Floor Work, Not Elsewhere Classified.[7] As shown in Table 14, costs as a percentage of payroll, sales, and profits are generally low on both a per-worker and per-establishment basis when averaged across a range of firms in affected industries. Costs as a percentage of sales per establishment average 0.13 percent and do not exceed 0.6 percent in any industry. For the impact scenario where cost pass-through is not possible, OSHA projects that profit reductions would average 2.4 percent and would be below 5 percent for all but one industry, floor laying and floor work. For flooring contractors in SIC 1752, profit impacts could exceed 9 percent if employers were forced to fully absorb compliance costs out of retained revenues and were not able to pass costs forward. OSHA believes, however, that profit impacts will not be

[7] Compliance costs for firms in SICs 6512 and 6513 were estimated on a per-building basis, rather than a per-firm basis, due to insufficient data on numbers of buildings owned per firm in these industry groups.

as severe as depicted in this worst-case scenario, for two reasons.

First, it appears that there are few services that compete with floor maintenance directly, and therefore demand for services provided by the industry is relatively inelastic. Secondly, all floor-laying establishments are treated uniformly by the revised standard. Because no individual firm faces unfair regulatory treatment by the revised standard, cost impacts are expected across the majority of industry. Consequently, most affected firms should be able to pass forward costs to customers without significant redistribution of market share. As indicated in Table 14, cost impacts on prices (sales) would be minimal under a full cost-pass-through scenario.

Annual costs for small establishments are expected to range from $128 per building for SIC 6512, Operators of Nonresidential Buildings to $723 per firm in SIC 1711, Plumbing, Heating and Air-Conditioning, as shown in Table 15, Column 4. Small-firm compliance costs as a percentage of payroll, sales, and profits are fairly modest on both a per-worker and per-establishment basis. Costs as a percentage of sales per establishment average 0.13 percent and do not exceed 0.3 percent in any industry, whereas, for the case of zero cost pass-through, costs as a percentage of profits average 2.4 percent. OSHA has concluded that no differential adverse impact will be experienced by small firms in any construction sector when compared to larger firms because the costs of compliance are expected to be roughly equivalent on a per-worker basis.

Routine maintenance in industrial facilities. In profiling asbestos maintenance activities within general industry, OSHA and CONSAD have assumed that the majority of the work would be performed by plant and maintenance personnel within the establishment. Under this assumption, incremental costs attributed to requirements in the revised construction standard that pertain to these maintenance tasks would financially impact general industry. Therefore, economic impacts associated with routine maintenance in general industry are included in this section on impacts under the construction standard. Impacts in affected general industry sectors are shown in Tables 16 and 17.

TABLE 16.—AVERAGE ECONOMIC IMPACTS ON THE REVISION TO THE ASBESTOS STANDARD FOR CONSTRUCTION ON ESTABLISHMENTS IN GENERAL INDUSTRY WHERE ROUTINE ASBESTOS MAINTENANCE IS PERFORMED

SIC Industry	Compliance cost per establishment	Compliance cost per establishment as a percentage of:	
		Sales per establishment	Pre-tax profits per establishment
2082 Malt Beverages	$229	[a]0.00	[a]0.00
26 Paper Products	3,742	0.02	0.31
28 Chemicals	697	[a]0.00	0.04
29 Petroleum Refining	584	[a]0.00	0.01
321 Flat Glass	651	[a]0.00	0.07
322 Glass and Glassware	651	0.01	0.07
323 Products of Purchased Glass	651	0.02	0.31
331 Steel Works, Blast Furnaces, and Mills	1,036	[a]0.00	0.08
332 Iron and Steel Foundries	1,036	0.01	0.23
34 Fabricated Metal Products	326	0.01	0.12
4813 Telephone Communications	525	[a]0.00	[a]0.00
4911 Electric Services	1,122	[a]0.00	0.02
493 Comb. Electric, Gas, and Other Utilities	1,300	0.01	0.12
492 Gas Production and Distribution	363	[a]0.00	0.01
4941 Water Supply	264	0.01	0.08
495 Sanitary Services	327	0.01	0.15
Averages	897	0.01	0.21

Sources: OSHA, Office of Regulatory Analysis; OSHA, 1994; Dun and Bradstreet, 1992a, 1992b; U.S. Department of Commerce, 1993.
[a]Impacts presented as 0.00% are projected to be below 0.01%.

TABLE 17.—ECONOMIC IMPACTS OF THE REVISION TO THE ASBESTOS STANDARD FOR CONSTRUCTION ON SMALL ESTABLISHMENTS IN GENERAL INDUSTRY WHERE ROUTINE ASBESTOS MAINTENANCE IS PERFORMED

SIC Industry	Compliance cost per establishment	Compliance cost per establishment as a percentage of	
		Sales per establishment	Pre-tax profits per establishment
2082 Malt Beverages	$229	0.01	0.28
26 Paper Products	229	0.01	0.11
28 Chemicals	229	0.01	0.10
29 Petroleum Refining	229	[a]0.00	0.02
321 Flat Glass	229	0.01	0.12
322 Glass and Glassware	229	0.01	0.16
323 Products of Purchased Glass	229	0.04	0.68
331 Steel Works, Blast Furnaces, and Mills	229	[a]0.00	0.06
332 Iron and Steel Foundries	229	0.01	0.11
34 Fabricated Metal Products	229	0.02	0.32
4813 Telephone Communications	496	0.01	0.04

TABLE 17.—ECONOMIC IMPACTS OF THE REVISION TO THE ASBESTOS STANDARD FOR CONSTRUCTION ON SMALL ESTABLISHMENTS IN GENERAL INDUSTRY WHERE ROUTINE ASBESTOS MAINTENANCE IS PERFORMED—Continued

SIC Industry	Compliance cost per establishment	Compliance cost per establishment as a percentage of	
		Sales per establishment	Pre-tax profits per establishment
4911 Electric Services	221	[a]0.00	0.03
493 Comb. Electric, Gas, and Other Utilities	221	0.01	0.13
492 Gas Production and Distribution	243	[a]0.00	0.03
4941 Water Supply	243	0.03	0.27
495 Sanitary Service	243	0.04	0.41
Averages	280	0.01	0.21

Sources: U.S. Department of Labor, OSHA, Office of Regulatory Analysis; OSHA, 1994; Dun and Bradstreet, 1992a, 1992b; U.S. Department of Commerce, 1993.

[a] Impacts presented as 0.00% are projected to be below 0.01%.

Economic impacts from costs of compliance in industrial facilities were computed in terms of price impacts and profit impacts. As shown in Table 16, average economic impacts across all affected establishments are expected to be minimal. Price impacts—costs as a percentage of sales—would average 0.01 percent if firms were able to pass forward all compliance costs to consumers. If full cost pass-through is not achievable and affected firms must finance compliance expenditures from retained earnings, OSHA anticipates that profit impacts would be no greater than 0.21 percent.

Table 17 presents economic impacts on small firms in general industry where routine asbestos maintenance takes place. The results suggest that no serious economic consequences are expected from compliance with the revision to the final rule. Impacts on sales average 0.01 percent, whereas impacts on profits average 0.21 percent and are no higher than 0.7 percent for any industry group. Therefore, OSHA concludes that there will be no significant differential effect on small businesses in general industry performing routine maintenance involving contact with asbestos-containing materials.

Conclusion

In this section OSHA presented economic impact projections for affected industry groups in general industry, shipyards and construction. Economic impact measures calculated by OSHA expressed percentage effects of compliance costs on payroll, sales, and profits. On the basis of OSHA's analysis of the economic effects of the revised asbestos standard, OSHA has determined that impacts will be modest for most affected industry groups. Therefore, OSHA judges the revised asbestos standard to be economically feasible.

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V. Clearance of Information Collection Requirements

5 CFR 1320 sets forth procedures for agencies to follow in obtaining OMB clearance for information collection requirements under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The final Asbestos standard requires the employer to allow OSHA access to records and under certain circumstances, requires employers to submit notifications to the Agency. OMB has reviewed and approved the collection of information requirements for occupational exposure to Asbestos for Construction (29 CFR 1926.1101) and Shipyards (29 CFR 1915.1001) under OMB clearance numbers 1218–0134 and 1218–0195 respectively. The OMB clearances expire in July 1997. There were no new information collection requirements for General industry 29 CFR 1910.1001, currently approved under 1218–0133. The Asbestos General industry clearance expires in March 1996.

VI. Authority and Signature

This document was prepared under the direction of Joseph A. Dear, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, NW., Washington, DC 20210.

Accordingly, pursuant to sections 4, 6(b), 8(c), and 8(g) of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act, 40 U.S.C. 333); Sec. 41, Longshore and Harbor Workers' Compensation Act (33 U.S.C. 941); and 29 CFR Part 1911; 29 CFR Part 1910, 1915 and 1926 are amended as set forth below.

List of Subjects in 29 CFR Part 1910, 1915 and 1926

Asbestos, Cancer, Carcinogen, Construction industry, Health, Hazardous materials, Labeling, Occupational Safety and Health, Protective Equipment, Respiratory Protection, Signs and symbols.

Signed at Washington, DC this 20th day of July, 1994.

Joseph A. Dear,

Assistant Secretary of Labor for Occupational Safety and Health.

VII. Amended Standards: Regulatory Text

OSHA hereby amends 29 CFR Parts 1910, 1915 and 1926 as follows:

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS

1. The authority citation of Subpart B of Part 1910 continues to read:

Authority: Secs. 4, 6 and 8 of the Occupational Safety and Health Act, 29 U.S.C. 653, 655, 657; Walsh-Healey Act, 41 U.S.C. 35 et seq; Service Contract Act of 1965, 41 U.S.C. 351 et seq; sec. 107, Contract Work Hours and Safety Standards Act (Construction Safety Act), 40 U.S.C. 333; sec. 41, Longshore and Harbor Workers' Compensation Act, 33 U.S.C. 941; National Foundation of Arts and Humanities Act, 20 U.S.C. 951 et seq.; Secretary of Labor's Order Nos. 12–71 (36 FR 8754), 6–76 (41 FR 1911), 9–83 (48 FR 35736), or 1–90 (55 FR 9033) as applicable.

1a. Paragraph (a) of § 1910.19 is revised to read as follows:

§ 1910.19. Special provisions for air contaminants.

(a) Asbestos, tremolite, anthophyllite, and actinolite dust. Section 1910.1001 shall apply to the exposure of every employee to asbestos, tremolite, anthophyllite, and actinolite dust in every employment and place of employment covered by § 1910.16, in lieu of any different standard on exposure to asbestos, tremolite, anthophyllite, and actinolite dust which would otherwise be applicable by virtue of any of those sections.

* * * * *

2. The authority citation of subpart Z of 29 CFR part 1910 continues to read as follows:

Authority: Secs 6, 8 Occupational Safety and Health Act, 29 U.S.C. 655, 657: Secretary of Labor's Order 12–71 (36 FR 8754), 9–76 (41 FR 25059), 9–83 [48 FR 35736] or 1–90 (55 FR 9033), as applicable; and 29 CFR part 1911.

All of subpart Z issued under section 6(b) of the Occupational Safety and Health Act, except those substances which have exposure limits listed in Tables Z–1, Z–2 and Z–3 of 29 CFR 1910.1000. The latter were issued under section 6(a) [29 U.S.C. 655(a)].

Section 1910.1000, Tables Z-1, Z-2 and Z-3 also issued under 5 U.S.C. 553. Section 1910.1000, Tables Z-1, Z-1 and Z-3 not issued under 29 CFR part 1911 except for the arsenic (organic compounds), benzene, and cotton dust listings.

Section 1910.1001 also issued under section 107 of Contract Work Hours and Safety Standards Act, 40 U.S.C. 333.

Section 1910.1002 not issued under 29 U.S.C. or 29 CFR part 1911; also issued under 5 U.S.C. 653.

Section 1910.1003 through 1910.1018 also issued under 29 CFR 653.

Section 1910.1025 also issued under 29 U.S.C. 653 and 5 U.S.C. 553.

Section 1910.1028 also issued under 29 U.S.C. 653.

Section 1910.1030 also issued under 29 U.S.C. 653.

Section 1910.1043 also issued under 5 U.S.C. 551 et seq.

Section 1910.1045 and 1910.1047 also issued under 29 U.S.C. 653.

Section 1910.1048 also issued under 29 U.S.C. 653.

Sections 1910.1200, 1910,1499 and 1910.1500 also issued under 5 U.S.C. 553.

Section 1910.1450 is also issued under sec. 6(b), 8(c) and 8(g)(2), Pub. L. 91–596, 84 Stat. 1593, 1599, 1600; 29 U.S.C. 655, 657.

3. Section 1910.1001 is amended by revising paragraphs (a) through (p) (all the text preceding the appendices) to read as follows:

§ 1910.1001 Asbestos.

(a) Scope and application. (1) This section applies to all occupational exposures to asbestos in all industries covered by the Occupational Safety and Health Act, except as provided in paragraph (a)(2) and (3) of this section.

(2) This section does not apply to construction work as defined in 29 CFR 1910.12(b). (Exposure to asbestos in construction work is covered by 29 CFR 1926.58.)

(3) This section does not apply to ship repairing, shipbuilding and shipbreaking employments and related employments as defined in 29 CFR 1915.4. (Exposure to asbestos in these employments is covered by 29 CFR 1915.191).

(b) Definitions.

Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

Asbestos-containing material (ACM) means any material containing more than 1% asbestos.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas.

Building/facility owner is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

Director means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Employee exposure means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Fiber means a particulate form of asbestos 5 micrometers or longer,with a length-to-diameter ratio of at least 3 to 1.

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-disperse particles.

Industrial hygienist means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

PACM means thermal system insulation, sprayed on or troweled on surfacing material and debris in work areas where such material is present.

Regulated area means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

(c) Permissible exposure limit (PELS)—(1) Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos excess of 0.1 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average (TWA) as determined by the method prescribed in Appendix A of this section, or by an equivalent method.

(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes.

(d) Exposure monitoring.—(1) General. (i) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(ii) Representative 8-hour TWA employee exposures shall be determined on the basis of one or more samples representing full-shift exposures for each shift for each employee in each job classification in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for each shift for each job classification in each work area.

(2) Initial monitoring. (i) Each employer who has a workplace or work operation covered by this standard, except as provided for in paragraphs (d)(2)(ii) and (d)(2)(iii) of this section, shall perform initial monitoring of employees who are, or may reasonably be expected to be exposed to airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit.

(ii) Where the employer has monitored after March 31, 1992, for the TWA permissible exposure limit and/or the excursion limit, and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (d)(2)(i) of this section.

(iii) Where the employer has relied upon objective data that demonstrate that asbestos is not capable of being released in airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling, then no initial monitoring is required.

(3) Monitoring frequency (periodic monitoring) and patterns. After the initial determinations required by paragraph (d)(2)(i) of this section, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than six months for employees whose exposures may reasonably be foreseen to exceed the TWA permissible exposure limit and/or excursion limit.

(4) Changes in monitoring frequency. If either the initial or the periodic monitoring required by paragraphs (d)(2) and (d)(3) of this section statistically indicates that employee exposures are below the TWA permissible exposure limit and/or excursion limit, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(5) Additional monitoring. Notwithstanding the provisions of paragraphs (d)(2)(ii) and (d)(4) of this section, the employer shall institute the exposure monitoring required under paragraphs (d)(2)(i) and (d)(3) of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures above the TWA permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the action level and/or excursion limit.

(6) Method of monitoring. (i) All samples taken to satisfy the monitoring requirements of paragraph (d) of this section shall be personal samples collected following the procedures specified in Appendix A.

(ii) All samples taken to satisfy the monitoring requirements of paragraph (d) of this section shall be evaluated using the OSHA Reference Method (ORM) specified in Appendix A of this section, or an equivalent counting method.

(iii) If an equivalent method to the ORM is used, the employer shall ensure that the method meets the following criteria:

(A) Replicate exposure data used to establish equivalency are collected in side-by-side field and laboratory comparisons; and

(B) The comparison indicates that 90% of the samples collected in the range 0.5 to 2.0 times the permissible limit have an accuracy range of plus or minus 25 percent of the ORM results at a 95% confidence level as demonstrated by a statistically valid protocol; and

(C) The equivalent method is documented and the results of the comparison testing are maintained.

(iv) To satisfy the monitoring requirements of paragraph (d) of this section, employers must use the results of monitoring analysis performed by laboratories which have instituted quality assurance programs that include the elements as prescribed in Appendix A of this section.

(7) Employee notification of monitoring results. (i) The employer shall, within 15 working days after the receipt of the results of any monitoring performed under the standard, notify the affected employees of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees.

(ii) The written notification required by paragraph (d)(7)(i) of this section shall contain the corrective action being taken by the employer to reduce employee exposure to or below the TWA and/or excursion limit, wherever monitoring results indicated that the TWA and/or excursion limit had been exceeded.

(e) Regulated Areas.—(1) Establishment. The employer shall establish regulated areas wherever airborne concentrations of asbestos and/or PACM are in excess of the TWA and/

or excursion limit prescribed in paragraph (c) of this section.

(2) Demarcation. Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to asbestos.

(3) Access. Access to regulated areas shall be limited to authorized persons or to persons authorized by the Act or regulations issued pursuant thereto.

(4) Provision of respirators. Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with paragraph (g)(2) of this section.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated areas.

(f) Methods of compliance.—(1) Engineering controls and work practices. (i) The employer shall institute engineering controls and work practices to reduce and maintain employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, except to the extent that such controls are not feasible.

(ii) Wherever the feasible engineering controls and work practices that can be instituted are not sufficient to reduce employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (g) of this section.

(iii) For the following operations, wherever feasible engineering controls and work practices that can be instituted are not sufficient to reduce the employee exposure to or below the TWA and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to or below 0.5 fiber per cubic centimeter of air (as an eight-hour time-weighted average) or 2.5 fibers/cc for 30 minutes (short-term exposure) and shall supplement them by the use of any combination of respiratory protection that complies with the requirements of paragraph (g) of this section, work practices and feasible engineering controls that will reduce employee exposure to or below the TWA and to or below the excursion limit permissible prescribed in paragraph (c) of this section: Coupling cutoff in primary asbestos cement pipe manufacturing; sanding in primary and secondary asbestos cement sheet manufacturing; grinding in primary and secondary friction product manufacturing; carding and spinning in dry textile processes; and grinding and sanding in primary plastics manufacturing.

(iv) Local exhaust ventilation. Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with good practices such as those found in the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2–1979.

(v) Particular tools. All hand-operated and power-operated tools which would produce or release fibers of asbestos, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems which comply with paragraph (f)(1)(iv) of this section.

(vi) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers so as to expose employees to levels in excess of the TWA and/or excursion limit, prescribed in paragraph (c) of this section, unless the usefulness of the product would be diminished thereby.

(vii) [Reserved]

(viii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos, shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne fibers of.

(ix) Compressed air. Compressed air shall not be used to remove asbestos or materials containing asbestos unless the compressed air is used in conjunction with a ventilation system which effectively captures the dust cloud created by the compressed air.

(x) Flooring. Sanding of asbestos-containing flooring material is prohibited.

(2) Compliance program. (i) Where the TWA and/or excursion limit is exceeded, the employer shall establish and implement a written program to reduce employee exposure to or below the TWA and to or below the excursion limit by means of engineering and work practice controls as required by paragraph (f)(1) of this section, and by the use of respiratory protection where required or permitted under this section.

(ii) Such programs shall be reviewed and updated as necessary to reflect significant changes in the status of the employer's compliance program.

(iii) Written programs shall be submitted upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives.

(iv) The employer shall not use employee rotation as a means of compliance with the TWA and/or excursion limit.

(3) Specific compliance methods for brake and clutch repair:

(i) Engineering controls and work practices for brake and clutch repair and service. During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and work practices to reduce employee exposure to materials containing asbestos using a negative pressure enclosure/HEPA vacuum system method or low pressure/wet cleaning method, which meets the detailed requirements set out in Appendix F to this section. The employer may also comply using an equivalent method which follows written procedures which the employer demonstrates can achieve results equivalent to Method A in Appendix F to this section. For facilities in which no more than 5 pair of brakes or 5 clutches are inspected, disassembled, repaired, or assembled per week, the method set forth in paragraph [D] of Appendix F of this section may be used.

(ii) The employer may also comply by using an equivalent method which follows written procedures, which the employer demonstrates can achieve equivalent exposure reductions as do the two "preferred methods." Such demonstration must include monitoring data conducted under workplace conditions closely resembling the process, type of asbestos containing materials, control method, work practices and environmental conditions which the equivalent method will be used, or objective data, which document that under all reasonably foreseeable conditions of brake and clutch repair applications, the method results in exposures which are equivalent to the methods set out in Appendix F to this section.

(g) Respiratory protection—(1) General. The employer shall provide respirators, and ensure that they are used, where required by this section. Respirators shall be used in the following circumstances:

(i) During the interval necessary to install or implement feasible engineering and work practice controls;

(ii) In work operations, such as maintenance and repair activities, or

other activities for which engineering and work practice controls are not feasible;

(iii) In work situations where feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below the TWA and/or excursion limit; and

(iv) In emergencies.

(2) Respirator selection. (i) Where respirators are required under this section, the employer shall select and provide, at no cost to the employee, the appropriate respirator as specified in Table 1. The employer shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(ii) The employer shall provide a powered, air-purifying respirator in lieu of any negative pressure respirator specified in Table 1 whenever:

(A) An employee chooses to use this type of respirator; and

(B) This respirator will provide adequate protection to the employee.

TABLE 1.—RESPIRATORY PROTECTION FOR ASBESTOS FIBERS

Airborne concentration of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10) X PEL), or otherwise as required independent of exposure pursuant to (h)(2)(iv).	Half-mask air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 X PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 X PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 X PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 X PEL) or unknown concentration.	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Note: a. Respirators assigned for high environmental concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.

b. A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

(3) Respirator program. (i) Where respiratory protection is required, the employer shall institute a respirator program in accordance with 29 CFR 1910.134(b), (d), (e), and (f).

(ii) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(iii) Employees who wear respirators shall, be permitted to leave the regulated area to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

(iv) No employee shall be assigned to tasks requiring the use of respirators if, based upon his or her most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator. Such employee shall be assigned to another job or given the opportunity to transfer to a different position whose duties he or she is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay the employee had just prior to such transfer, if such a different position is available.

(4) Respirator fit testing. (i) The employer shall ensure that the respirator issued to the employee exhibits the least possible facepiece leakage and that the respirator is fitted properly.

(ii) For each employee wearing negative pressure respirators, employers shall perform either quantitative or qualitative face fit tests at the time of initial fitting and at least every six months thereafter. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn, and shall be conducted in accordance with Appendix C of this section. The tests shall be used to select facepieces that provide the required protection as prescribed in Table 1, in paragraph (g)(2)(ii) of this section.

(h) Protective work clothing and equipment—(1) Provision and use. If an employee is exposed to asbestos above the TWA and/or excursion limit, or where the possibility of eye irritation exists, the employer shall provide at no cost to the employee and ensure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, head coverings, and foot coverings; and

(iii) Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133 of this Part.

(2) Removal and storage. (i) The employer shall ensure that employees remove work clothing contaminated with asbestos only in change rooms provided in accordance with paragraph (i)(1) of this section.

(ii) The employer shall ensure that no employee takes contaminated work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(iii) Contaminated work clothing shall be placed and stored in closed containers which prevent dispersion of the asbestos outside the container.

(iv) Containers of contaminated protective devices or work clothing which are to be taken out of change rooms or the workplace for cleaning, maintenance or disposal, shall bear labels in accordance with paragraph(j)(2) of this section.

(3) Cleaning and replacement. (i) The employer shall clean, launder, repair, or replace protective clothing and equipment required by this paragraph to maintain their effectiveness. The employer shall provide clean protective clothing and equipment at least weekly to each affected employee.

(ii) The employer shall prohibit the removal of asbestos from protective clothing and equipment by blowing or shaking. (iii) Laundering of contaminated clothing shall be done so as to prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits prescribed in paragraph (c) of this section.

(iv) Any employer who gives contaminated clothing to another person for laundering shall inform such person

of the requirement in paragraph (h)(3)(iii) of this section to effectively prevent the release of airborne fibers of asbestos in excess of the permissible exposure limits.

(v) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with asbestos of the potentially harmful effects of exposure to asbestos.

(vi) Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and labeled in accordance with paragraph (j) of this section.

(i) Hygiene facilities and practices—(1) Change rooms. (i) The employer shall provide clean change rooms for employees who work in areas where their airborne exposure to asbestos is above the TWA and/or excursion limit.

(ii) The employer shall ensure that change rooms are in accordance with 1910.141(e) of this part, and are equipped with two separate lockers or storage facilities, so separated as to prevent contamination of the employee's street clothes from his protective work clothing and equipment.

(2) Showers. (i) The employer shall ensure that employees who work in areas where their airborne exposure is above the TWA and/or excursion limit shower at the end of the work shift.

(ii) The employer shall provide shower facilities which comply with 1910.141(d)(3) of this part.

(iii) The employer shall ensure that employees who are required to shower pursuant to paragraph (i)(2)(i) of this section do not leave the workplace wearing any clothing or equipment worn during the work shift.

(3) Lunchrooms. (i) The employer shall provide lunchroom facilities for employees who work in areas where their airborne exposure is above the TWA and/or excursion limit.

(ii) The employer shall ensure that lunchroom facilities have a positive pressure, filtered air supply, and are readily accessible to employees.

(iii) The employer shall ensure that employees who work in areas where their airborne exposure is above the PEL and/or excursion limit wash their hands and faces prior to eating, drinking or smoking.

(iv) The employer shall ensure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface asbestos fibers have been removed from the clothing or equipment by vacuuming or other method that removes dust without causing the asbestos to become airborne.

(4) Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(j) Communication of hazards to employees—Introduction. This section applies to the communication of information concerning asbestos hazards in general industry to facilitate compliance with this standard. Asbestos exposure in general industry occurs in a wide variety of industrial and commercial settings. Employees who manufacture asbestos-containing products may be exposed to asbestos fibers. Employees who repair and replace automotive brakes and clutches may be exposed to asbestos fibers. In addition, employees engaged in housekeeping activities in industrial facilities with asbestos product manufacturing operations, and in public and commercial buildings with installed asbestos containing materials may be exposed to asbestos fibers. Most of these workers are covered by this general industry standard, with the exception of state or local governmental employees in non-state plan states. It should be noted that employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard, 29 CFR 1926.1101, formerly 1926.58). However, housekeeping employees, regardless of industry designation, should know whether building components they maintain may expose them to asbestos. The same hazard communication provisions will protect employees who perform housekeeping operations in all three asbestos standards; general industry, construction, and shipyard employment. As noted in the construction standard, building owners are often the only and/or best source of information concerning the presence of previously installed asbestos containing building materials. Therefore they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

(1) Installed Asbestos Containing Material. Employers and building owners are required to treat installed TSI and sprayed on and troweled-on surfacing materials as ACM for purposes of this standard. These materials are designated "presumed ACM or PACM", and are defined in paragraph (B) of this standard. Asphalt and vinyl flooring material installed no later than 1980 also must be treated as asbestos-containing. The employer or building owner may demonstrate that PACM and flooring material do not contain asbestos by complying with paragraph (j)(6) of this section.

(2) Duties of employers and building and facility owners. (i) Employers and building and facility owners shall exercise due diligence in complying with these requirements to inform employers and employees about the presence and location of ACM and PACM.

(ii) Building and facility owners shall maintain records of all information required to be provided pursuant to this section and/or otherwise known to the building owner concerning the presence, location and quantity of ACM and PACM in the building/facility. Such records shall be kept for the duration of ownership and shall be transferred to successive owners.

(iii) Building and facility owners shall inform employers of employees, and employers shall inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and PACM in such areas. Identification of ACM and PACM shall be made by an industrial hygienists or by persons whose skill and experience with respect to identification of asbestos hazards, is the equivalent to that of industrial hygienists and so can be demonstrated by the owner.

(3) Warning signs. (i) Posting. Warning signs shall be provided and displayed at each regulated area. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(ii) Sign specifications. The warning signs required by paragraph (j)(1)(i) of this section shall bear the *following* information:

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTIVE CLOTHING

ARE REQUIRED IN THIS AREA

(iii) [Reserved]

(iv) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by paragraph (j)(1)(i) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

(4) Warning labels. (i) Labeling. Warning labels shall be affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers.

(ii) Label specifications. The labels shall comply with the requirements of 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard, and shall include the following information:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

(5) Material safety data sheets. Employers who are manufacturers or importers of asbestos or asbestos products shall comply with the requirements regarding development of material safety data sheets as specified in 29 CFR 1910.1200(g) of OSHA's Hazard Communication standard, except as provided by paragraph (j)(4) of this section.

(6) The provisions for labels required by paragraph (j)(2) of this section or for material safety data sheets required by paragraph (j)(5) of this section do not apply where:

(i) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of fibers of asbestos in excess of the TWA permissible exposure level and/or excursion limit will be released or

(ii) Asbestos is present in a product in concentrations less than 1.0%.

(7) Employee information and training. (i) The employer shall institute a training program for all employees who are exposed to airborne concentrations of asbestos at or above the PEL and/or excursion limit and ensure their participation in the program.

(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(iii) The training program shall be conducted in a manner which the employee is able to understand. The employer shall ensure that each employee is informed of the following:

(A) The health effects associated with asbestos exposure;

(B) The relationship between smoking and exposure to asbestos producing lung cancer;

(C) The quantity, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos;

(D) The engineering controls and work practices associated with the employee's job assignment;

(E) The specific procedures implemented to protect employees from exposure to asbestos, such as appropriate work practices, emergency and clean-up procedures, and personal protective equipment to be used;

(F) The purpose, proper use, and limitations of respirators and protective clothing, if appropriate;

(G) The purpose and a description of the medical surveillance program required by paragraph (l) of this section;

(H) The content of this standard, including appendices.

(I) The names, addresses and phone numbers of public health organizations which provide information, materials, and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix I to this section, to comply with this requirement.

(J) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(iv) The employer shall also provide, at no cost to employees who perform housekeeping operations in a facility which contains ACM or PACM, an asbestos awareness training course, which shall at a minimum contain the following elements: health effects of asbestos, locations of ACM and PACM in the building/facility, recognition of ACM and PACM damage and deterioration, requirements in this standard relating to housekeeping, and proper response to fiber release episodes, to all employees who are or will work in areas where ACM and/or PACM is present. Each such employee shall be so trained at least once a year.

(v) Access to information and training materials.

(A) The employer shall make a copy of this standard and its appendices readily available without cost to all affected employees.

(B) The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the training program to the Assistant Secretary and the Director.

(C) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89–1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix I to this section.

(8) Criteria to rebut the designation of installed material as PACM. (i) At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (j)(8)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (n) of this section.

(ii) An employer or owner may demonstrate that PACM does not contain asbestos by the following:

(A) Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR 763, Subpart E) which demonstrates that no asbestos is present in the material;

(B) Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests shall include analysis of 3 bulk samples of each homogeneous area of PACM collected in a randomly distributed manner. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) of the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

(iii) The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is asbestos free.

(k) Housekeeping. (1) All surfaces shall be maintained as free as practicable of accumulations of dusts and waste containing asbestos.

(2) All spills and sudden releases of material containing asbestos shall be cleaned up as soon as possible.

(3) Surfaces contaminated with asbestos may not be cleaned by the use of compressed air.

(4) Vacuuming. HEPA-filtered vacuuming equipment shall be used for vacuuming. The equipment shall be used and emptied in a manner which minimizes the reentry of asbestos into the workplace.

(5) Shoveling, dry sweeping and dry clean-up of asbestos may be used only

where vacuuming and/or wet cleaning are not feasible.

(6) Waste disposal. Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with asbestos consigned for disposal, shall be collected, recycled and disposed of in sealed impermeable bags, or other closed, impermeable containers.

(7) Care of asbestos-containing flooring material.

(i) Sanding of asbestos-containing floor material is prohibited.

(ii) Stripping of finishes shall be conducted using low abrasion pads at speed lower than 300 rpm and wet methods.

(iii) Burnishing or dry buffing may be performed only on asbestos-containing flooring which has sufficient finish so that the pad cannot contact the asbestos-containing material.

(iv) Dust and debris in an area containing TSI or surfacing ACM/PACM or visibly deteriorated ACM, shall not be dusted or swept dry, or vacuumed without using a HEPA filter.

(l) Medical surveillance—(1) General—(i) Employees covered. The employer shall institute a medical surveillance program for all employees who are or will be exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

(ii) Examination by a physician. (A) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee and at a reasonable time and place.

(B) Persons other than licensed physicians, who administer the pulmonary function testing required by this section, shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(2) Pre-placement examinations. (i) Before an employee is assigned to an occupation exposed to airborne concentrations of asbestos fibers at or above the TWA and/or excursion limit, a pre-placement medical examination shall be provided or made available by the employer.

(ii) Such examination shall include, as a minimum, a medical and work history; a complete physical examination of all systems with emphasis on the respiratory system, the cardiovascular system and digestive tract; completion of the respiratory disease standardized questionnaire in Appendix D, Part 1; a chest roentgenogram (posterior-anterior 14×17 inches); pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1.0)); and any additional tests deemed appropriate by the examining physician. Interpretation and classification of chest roentgenogram shall be conducted in accordance with Appendix E to this section.

(3) Periodic examinations. (i) Periodic medical examinations shall be made available annually.

(ii) The scope of the medical examination shall be in conformance with the protocol established in paragraph (l)(2)(ii) of this section, except that the frequency of chest roentgenogram shall be conducted in accordance with Table 2, and the abbreviated standardized questionnaire contained in, Part 2 of Appendix D to this section shall be administered to the employee.

TABLE 2.—FREQUENCY OF CHEST ROENTGENOGRAM

Years since first exposure	Age of employee		
	15 to 35	35+ to 40	45+
0 to 10	Every 5 years	Every 5 years	Every 5 years.
10+	Every 5 years	Every 2 years	Every 1 year.

(4) Termination of employment examinations. (i) The employer shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit.

(ii) The medical examination shall be in accordance with the requirements of the periodic examinations stipulated in paragraph (l)(3) of this section, and shall be given within 30 calendar days before or after the date of termination of employment.

(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been examined in accordance with any of paragraphs ((l)(2) through (l)(4)) of this section within the past 1 year period. A pre-employment medical examination which was required as a condition of employment by the employer, may not be used by that employer to meet the requirements of this paragraph, unless the cost of such examination is borne by the employer.

(6) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and Appendices D and E.

(ii) A description of the affected employee's duties as they relate to the employee's exposure.

(iii) The employee's representative exposure level or anticipated exposure level.

(iv) A description of any personal protective and respiratory equipment used or to be used.

(v) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(7) Physician's written opinion. (i) The employer shall obtain a written signed opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

(A) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

(B) Any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators; and

(C) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment.

(D) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(ii) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(iii) The employer shall provide a copy of the physician's written opinion

to the affected employee within 30 days from its receipt.

(m) Recordkeeping.—(1) Exposure measurements. NOTE: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section. (i) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (d) of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement;

(B) The operation involving exposure to asbestos which is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of respiratory protective devices worn, if any; and

(F) Name, social security number and exposure of the employees whose exposure are represented.

(iii) The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.20.

(2) Objective data for exempted operations. (i) Where the processing, use, or handling of products made from or containing asbestos is exempted from other requirements of this section under paragraph (d)(2)(iii) of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(ii) The record shall include at least the following:

(A) The product qualifying for exemption;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

(D) A description of the operation exempted and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(3) Medical surveillance. (i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (l)(1)(i) of this section, in accordance with 29 CFR 1910.20.

(ii) The record shall include at least the following information:

(A) The name and social security number of the employee;

(B) Physician's written opinions;

(C) Any employee medical complaints related to exposure to asbestos; and

(D) A copy of the information provided to the physician as required by paragraph (l)(6) of this section.

(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.20.

(4) Training. The employer shall maintain all employee training records for one (1) year beyond the last date of employment of that employee.

(5) Availability. (i) The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

(ii) The employer, upon request shall make any exposure records required by paragraph (m)(1) of this section available for examination and copying to affected employees, former employees, designated representatives and the Assistant Secretary, in accordance with 29 CFR 1910.20 (a) through (e) and (g) through (i).

(iii) The employer, upon request, shall make employee medical records required by paragraph (m)(2) of this section available for examination and copying to the subject employee, to anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.20.

(6) Transfer of records. (i) The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.20(h).

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal of records and, upon request, transmit them to the Director.

(n) Observation of monitoring—(1) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with paragraph (d) of this section.

(2) Observation procedures. When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(o) Dates—(1) Effective date. This standard shall become effective October 11, 1994.

(2) The provisions of 29 CFR 1910.1001 remain in effect until the start-up dates of the equivalent provisions of this standard.

(3) Start-up dates. All obligations of this standard commence on the effective date except as follows:

(i) Exposure monitoring. Initial monitoring required by paragraph (d)(2) of this section shall be completed as soon as possible but no later than January 9, 1995.

(ii) Regulated areas. Regulated areas required to be established by paragraph (e) of this section as a result of initial monitoring shall be set up as soon as possible after the results of that monitoring are known and not later than February 8, 1995.

(iii) Respiratory protection. Respiratory protection required by paragraph (g) of this section shall be provided as soon as possible but no later than January 9, 1995.

(iv) Hygiene and lunchroom facilities. Construction plans for change rooms, showers, lavatories, and lunchroom facilities shall be completed as soon as possible but no later than July 10, 1995.

(v) Employee information and training. Employee information and training shall be provided as soon as possible but not later than April 10, 1995.

(vi) Medical surveillance. Medical surveillance not previously required by paragraph (l) of this section shall be provided as soon as possible but no later than January 9, 1995.

(vii) Compliance program. Written compliance programs required by paragraph (f)(2) of this section shall be completed and available for inspection and copying as soon as possible but no later than February 8, 1995.

(viii) Methods of compliance. The engineering and work practice controls as required by paragraph (f)(1) shall be implemented as soon as possible but no later than April 10, 1995.

(p) Appendices. (1) Appendices A, C, D, E, and F to this section are incorporated as part of this section and the contents of these Appendices are mandatory.

(2) Appendices B, F, G, H, I, and J to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(Approved by the Office of Management and Budget under control number 1218–0133)

Appendix A to § 1910.1001 [Amended]

4. Appendix A to § 1910.1001 is amended by the revising the second sentence of the introductory paragraph to read as follows:

* * * The sampling and analytical methods described below represent the elements of the available monitoring methods (such as Appendix B of their regulation, the most current version of the OSHA method ID–160, or the most current version of the NIOSH Method 7400). * * *

* * * * *

5. Paragraph 2. of the section of Appendix A to § 1910.1001 entitled *Sampling and Analytical Procedure* is amended by adding the following sentence to the end:

* * * * *

2. * * * Do not reuse or reload cassettes for asbestos sample collection.

* * * * *

6. Paragraph 11 of the section of Appendix A to § 1910.1001 entitled *Sampling and Analytical Procedure* is revised to read as follows:

* * * * *

11. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

* * * * *

7. Paragraph 2 of the section of Appendix A to § 1910.1001 entitled *Quality Control Procedures* is amended by redesignating it as paragraph 2a and by adding paragraph 2b to read as follows:

* * * * *

2.b. All laboratories should also participate in a national sample testing scheme such as the Proficiency Analytical Testing Program (PAT), or the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

* * * * *

8. Appendix B of 1910.1001 is revised to read as follows:

Appendix B to § 1910.1001—Detailed Procedures for Asbestos Sampling and Analysis—Non-mandatory

	Air
Matrix:	
OSHA Permissible Exposure Limits:	
Time Weighted Average.	0.1 fiber/cc
Excursion Level (30 minutes).	1.0 fiber/cc
Collection Procedure:	
A known volume of air is drawn through a 25-mm diameter cassette containing a mixed-cellulose ester filter. The cassette must be equipped with an electrically conductive 50-mm extension cowl. The sampling time and rate are chosen to give a fiber density of between 100 to 1,300 fibers/mm² on the filter.	
Recommended Sampling Rate.	0.5 to 5.0 liters/minute (L/min)
Recommended Air Volumes:	
Minimum	25 L
Maximum	2,400 L

Analytical Procedure: A portion of the sample filter is cleared and prepared for asbestos fiber counting by Phase Contrast Microscopy (PCM) at 400X.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL-OSHA. Similar products from other sources can be substituted.

1. Introduction

This method describes the collection of airborne asbestos fibers using calibrated sampling pumps with mixed-cellulose ester (MCE) filters and analysis by phase contrast microscopy (PCM). Some terms used are unique to this method and are defined below:

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, crocidolite, amosite (cummingtonite-grunerite asbestos), tremolite asbestos, actinolite asbestos, anthophyllite asbestos, and any of these minerals that have been chemically treated and/or altered. The precise chemical formulation of each species will vary with the location from which it was mined. Nominal compositions are listed:

Chrysotile	$Mg_3Si_2O_5(OH)_4$
Crocidolite	$Na_2Fe_2^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$
Amosite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos which meets the criteria specified below for a fiber.

Aspect Ratio: The ratio of the length of a fiber to it's diameter (e.g. 3:1, 5:1 aspect ratios).

Cleavage Fragments: Mineral particles formed by comminution of minerals, especially those characterized by parallel sides and a moderate aspect ratio (usually less than 20:1).

Detection Limit: The number of fibers necessary to be 95% certain that the result is greater than zero.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from the fiber count because they do not appear to be asbestos.

Fiber: A particle that is 5 μm or longer, with a length-to-width ratio of 3 to 1 or longer.

Field: The area within the graticule circle that is superimposed on the microscope image.

Set: The samples which are taken, submitted to the laboratory, analyzed, and for which, interim or final result reports are generated.

Tremolite, Anthophyllite, and Actinolite: The non-asbestos form of these minerals which meet the definition of a fiber. It includes any of these minerals that have been chemically treated and/or altered.

Walton-Beckett Graticule: An eyepiece graticule specifically designed for asbestos fiber counting. It consists of a circle with a projected diameter of 100 # 2 μm (area of about 0.00785 mm²) with a crosshair having tic-marks at 3-μm intervals in one direction and 5-μm in the orthogonal direction. There are marks around the periphery of the circle to demonstrate the proper sizes and shapes of fibers. This design is reproduced in Figure 2. The disk is placed in one of the microscope eyepieces so that the design is superimposed on the field of view.

1.1. History

Early surveys to determine asbestos exposures were conducted using impinger counts of total dust with the counts expressed as million particles per cubic foot. The British Asbestos Research Council recommended filter membrane counting in 1969. In July 1969, the Bureau of Occupational Safety and Health published a filter membrane method for counting asbestos fibers in the United States. This method was refined by NIOSH and published as P & CAM 239. On May 29, 1971, OSHA specified filter membrane sampling with phase contrast counting for evaluation of asbestos exposures at work sites in the United States. The use of this technique was again required by OSHA in 1986. Phase contrast microscopy has continued to be the method of choice for the measurement of occupational exposure to asbestos.

1.2. Principle

Air is drawn through a MCE filter to capture airborne asbestos fibers. A wedge shaped portion of the filter is removed, placed on a glass microscope slide and made transparent. A measured area (field) is viewed by PCM. All the fibers meeting a defined criteria for asbestos are counted and considered a measure of the airborne asbestos concentration.

1.3. Advantages and Disadvantages

There are four main advantages of PCM over other methods:

(1) The technique is specific for fibers. Phase contrast is a fiber counting technique which excludes non-fibrous particles from the analysis.

(2) The technique is inexpensive and does not require specialized knowledge to carry out the analysis for total fiber counts.

(3) The analysis is quick and can be performed on-site for rapid determination of air concentrations of asbestos fibers.

(4) The technique has continuity with historical epidemiological studies so that estimates of expected disease can be inferred from long-term determinations of asbestos exposures.

The main disadvantage of PCM is that it does not positively identify asbestos fibers. Other fibers which are not asbestos may be included in the count unless differential counting is performed. This requires a great deal of experience to adequately differentiate asbestos from non-asbestos fibers. Positive identification of asbestos must be performed by polarized light or electron microscopy techniques. A further disadvantage of PCM is that the smallest visible fibers are about 0.2 μm in diameter while the finest asbestos fibers may be as small as 0.02 μm in diameter. For some exposures, substantially more fibers may be present than are actually counted.

1.4. Workplace Exposure

Asbestos is used by the construction industry in such products as shingles, floor tiles, asbestos cement, roofing felts, insulation and acoustical products. Non-construction uses include brakes, clutch facings, paper, paints, plastics, and fabrics. One of the most significant exposures in the workplace is the removal and encapsulation of asbestos in schools, public buildings, and homes. Many workers have the potential to be exposed to asbestos during these operations.

About 95% of the asbestos in commercial use in the United States is chrysotile. Crocidolite and amosite make up most of the remainder. Anthophyllite and tremolite or actinolite are likely to be encountered as contaminants in various industrial products.

1.5. Physical Properties

Asbestos fiber possesses a high tensile strength along its axis, is chemically inert, non-combustible, and heat resistant. It has a high electrical resistance and good sound absorbing properties. It can be weaved into cables, fabrics or other textiles, and also matted into asbestos papers, felts, or mats.

2. Range and Detection Limit

2.1. The ideal counting range on the filter is 100 to 1,300 fibers/mm². With a Walton-Beckett graticule this range is equivalent to 0.8 to 10 fibers/field. Using NIOSH counting statistics, a count of 0.8 fibers/field would give an approximate coefficient of variation (CV) of 0.13.

2.2. The detection limit for this method is 4.0 fibers per 100 fields or 5.5 fibers/mm². This was determined using an equation to estimate the maximum CV possible at a specific concentration (95% confidence) and a Lower Control Limit of zero. The CV value was then used to determine a corresponding concentration from historical CV vs fiber relationships. As an example:

Lower Control Limit (95% Confidence) = AC − 1.645(CV)(AC)

Where:

AC = Estimate of the airborne fiber concentration (fibers/cc) Setting the Lower Control Limit = 0 and solving for CV:

0 = AC − 1.645(CV)(AC)

CV = 0.61

This value was compared with CV vs. count curves. The count at which CV = 0.61 for Leidel-Busch counting statistics or for an OSHA Salt Lake Technical Center (OSHA–SLTC) CV curve (see Appendix A for further information) was 4.4 fibers or 3.9 fibers per 100 fields, respectively. Although a lower detection limit of 4 fibers per 100 fields is supported by the OSHA–SLTC data, both data sets support the 4.5 fibers per 100 fields value.

3. Method Performance—Precision and Accuracy

Precision is dependent upon the total number of fibers counted and the uniformity of the fiber distribution on the filter. A general rule is to count at least 20 and not more than 100 fields. The count is discontinued when 100 fibers are counted, provided that 20 fields have already been counted. Counting more than 100 fibers results in only a small gain in precision. As the total count drops below 10 fibers, an accelerated loss of precision is noted.

At this time, there is no known method to determine the absolute accuracy of the asbestos analysis. Results of samples prepared through the Proficiency Analytical Testing (PAT) Program and analyzed by the OSHA–SLTC showed no significant bias when compared to PAT reference values. The PAT samples were analyzed from 1987 to 1989 (N=36) and the concentration range was from 120 to 1,300 fibers/mm².

4. Interferences

Fibrous substances, if present, may interfere with asbestos analysis.

Some common fibers are:

Fiber glass	anhydrite plant fibers.
Gypsum	Perlite veins.
Membrane structures	Some synthetic fibers.
Microorganisms	Sponge spicules and diatoms.
	Wollastonite.

The use of electron microscopy or optical tests such as polarized light, and dispersion staining may be used to differentiate these materials from asbestos when necessary.

5. Sampling

5.1. Equipment

5.1.1. Sample assembly (The assembly is shown in Figure 3). Conductive filter holder consisting of a 25-mm diameter, 3-piece cassette having a 50-mm long electrically conductive extension cowl. Backup pad, 25-mm, cellulose. Membrane filter, mixed-cellulose ester (MCE), 25-mm, plain, white, 0.8- to 1.2-μm pore size.

Notes: (a) Do not re-use cassettes.

(b) Fully conductive cassettes are required to reduce fiber loss to the sides of the cassette due to electrostatic attraction.

(c) Purchase filters which have been selected by the manufacturer for asbestos counting or analyze representative filters for fiber background before use. Discard the filter lot if more than 4 fibers/100 fields are found.

(d) To decrease the possibility of contamination, the sampling system (filter-backup pad-cassette) for asbestos is usually preassembled by the manufacturer.

5.1.2. Gel bands for sealing cassettes.

5.1.3. Sampling pump.

Each pump must be a battery operated, self-contained unit small enough to be placed on the monitored employee and not interfere with the work being performed. The pump must be capable of sampling at 2.5 liters per minute (L/min) for the required sampling time.

5.1.4. Flexible tubing, 6-mm bore.

5.1.5. Pump calibration.

Stopwatch and bubble tube/burette or electronic meter.

5.2. Sampling Procedure

5.2.1. Seal the point where the base and cowl of each cassette meet (see Figure 3) with a gel band or tape.

5.2.2. Charge the pumps completely before beginning.

5.2.3. Connect each pump to a calibration cassette with an appropriate length of 6-mm bore plastic tubing. Do not use luer connectors—the type of cassette specified above has built-in adapters.

5.2.4. Select an appropriate flow rate for the situation being monitored. The sampling flow rate must be between 0.5 and 5.0 L/min for personal sampling and is commonly set between 1 and 2 L/min. Always choose a flow rate that will not produce overloaded filters.

5.2.5. Calibrate each sampling pump before and after sampling with a calibration cassette in-line (Note: This calibration cassette should be from the same lot of cassettes used for sampling). Use a primary standard (e.g. bubble burette) to calibrate each pump. If possible, calibrate at the sampling site.

Note: If sampling site calibration is not possible, environmental influences may affect the flow rate. The extent is dependent on the type of pump used. Consult with the pump manufacturer to determine dependence on environmental influences. If the pump is affected by temperature and pressure changes, use the formula in Appendix B to calculate the actual flow rate.

5.2.6. Connect each pump to the base of each sampling cassette with flexible tubing. Remove the end cap of each cassette and take each air sample open face. Assure that each sample cassette is held open side down in the employee's breathing zone during sampling. The distance from the nose/mouth of the employee to the cassette should be about 10 cm. Secure the cassette on the collar or lapel of the employee using spring clips or other similar devices.

5.2.7. A suggested minimum air volume when sampling to determine TWA compliance is 25 L. For Excursion Limit (30 min sampling time) evaluations, a minimum air volume of 48 L is recommended.

5.2.8. The most significant problem when sampling for asbestos is overloading the filter with non-asbestos dust. Suggested maximum air sample volumes for specific environments are:

Environment	Air vol. (L)
Asbestos removal operations (visible dust).	100
Asbestos removal operations (little dust).	240
Office environments	400 to 2,400

Caution: Do not overload the filter with dust. High levels of non-fibrous dust particles may obscure fibers on the filter and lower the count or make counting impossible. If more than about 25 to 30% of the field area is obscured with dust, the result may be biased low. Smaller air volumes may be necessary when there is excessive non-asbestos dust in the air.

While sampling, observe the filter with a small flashlight. If there is a visible layer of dust on the filter, stop sampling, remove and seal the cassette, and replace with a new sampling assembly. The total dust loading should not exceed 1 mg.

5.2.9. Blank samples are used to determine if any contamination has occurred during sample handling. Prepare two blanks for the first 1 to 20 samples. For sets containing greater than 20 samples, prepare blanks as 10% of the samples. Handle blank samples in the same manner as air samples with one exception: Do not draw any air through the blank samples. Open the blank cassette in the place where the sample cassettes are mounted on the employee. Hold it open for about 30 seconds. Close and seal the cassette appropriately. Store blanks for shipment with the sample cassettes.

5.2.10. Immediately after sampling, close and seal each cassette with the base and plastic plugs. Do not touch or puncture the filter membrane as this will invalidate the analysis.

5.2.11. Attach a seal (OSHA–21 or equivalent) around each cassette in such a way as to secure the end cap plug and base plug. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

5.3. Sample Shipment

5.3.1. Send the samples to the laboratory with paperwork requesting asbestos analysis. List any known fibrous interferences present during sampling on the paperwork. Also, note the workplace operation(s) sampled.

5.3.2. Secure and handle the samples in such that they will not rattle during shipment nor be exposed to static electricity. Do not ship samples in expanded polystyrene peanuts, vermiculite, paper shreds, or excelsior. Tape sample cassettes to sheet bubbles and place in a container that will cushion the samples without rattling.

5.3.3. To avoid the possibility of sample contamination, always ship bulk samples in separate mailing containers.

6. Analysis

6.1. Safety Precautions

6.1.1. Acetone is extremely flammable and precautions must be taken not to ignite it. Avoid using large containers or quantities of acetone. Transfer the solvent in a ventilated laboratory hood. Do not use acetone near any open flame. For generation of acetone vapor, use a spark free heat source.

6.1.2. Any asbestos spills should be cleaned up immediately to prevent dispersal of fibers. Prudence should be exercised to avoid contamination of laboratory facilities or exposure of personnel to asbestos. Asbestos spills should be cleaned up with wet methods and/or a High Efficiency Particulate-Air (HEPA) filtered vacuum.

Caution: Do not use a vacuum without a HEPA filter—It will disperse fine asbestos fibers in the air.

6.2. Equipment

6.2.1. Phase contrast microscope with binocular or trinocular head.

6.2.2. Widefield or Huygenian 10X eyepieces (**Note:** The eyepiece containing the graticule must be a focusing eyepiece. Use a 40X phase objective with a numerical aperture of 0.65 to 0.75).

6.2.3. Kohler illumination (if possible) with green or blue filter.

6.2.4. Walton-Beckett Graticule, type G–22 with 100 ± 2 µm projected diameter.

6.2.5. Mechanical stage.

A rotating mechanical stage is convenient for use with polarized light.

6.2.6. Phase telescope.

6.2.7. Stage micrometer with 0.01–mm subdivisions.

6.2.8. Phase-shift test slide, mark II (Available from PTR optics Ltd., and also McCrone).

6.2.9. Precleaned glass slides, 25 mm X 75 mm. One end can be frosted for convenience in writing sample numbers, etc., or paste-on labels can be used.

6.2.10. Cover glass #1 ½.

6.2.11. Scalpel (#10, curved blade).

6.2.12. Fine tipped forceps.

6.2.13. Aluminum block for clearing filter (see Appendix D and Figure 4).

6.2.14. Automatic adjustable pipette, 100- to 500-µL.

6.2.15. Micropipette, 5 µL.

6.3. Reagents

6.3.1. Acetone (HPLC grade).

6.3.2. Triacetin (glycerol triacetate).

6.3.3. Lacquer or nail polish.

6.4. Standard Preparation

A way to prepare standard asbestos samples of known concentration has not been developed. It is possible to prepare replicate samples of nearly equal concentration. This has been performed through the PAT program. These asbestos samples are distributed by the AIHA to participating laboratories.

Since only about one-fourth of a 25–mm sample membrane is required for an asbestos count, any PAT sample can serve as a "standard" for replicate counting.

6.5. Sample Mounting

Note: See Safety Precautions in Section 6.1. before proceeding. The objective is to produce samples with a smooth (non-grainy) background in a medium with a refractive index of approximately 1.46. The technique below collapses the filter for easier focusing and produces permanent mounts which are useful for quality control and interlaboratory comparison.

An aluminum block or similar device is required for sample preparation. A drawing is shown in Figure 4.

6.5.1. Heat the aluminum block to about 70° C. The hot block should not be used on any surface that can be damaged by either the heat or from exposure to acetone.

6.5.2. Ensure that the glass slides and cover glasses are free of dust and fibers.

6.5.3. Remove the top plug to prevent a vacuum when the cassette is opened. Clean the outside of the cassette if necessary. Cut the seal and/or tape on the cassette with a razor blade. Very carefully separate the base from the extension cowl, leaving the filter and backup pad in the base.

6.5.4. With a rocking motion cut a triangular wedge from the filter using the scalpel. This wedge should be one-sixth to one-fourth of the filter. Grasp the filter wedge with the forceps on the perimeter of the filter which was clamped between the cassette pieces. DO NOT TOUCH the filter with your finger. Place the filter on the glass slide sample side up. Static electricity will usually keep the filter on the slide until it is cleared.

6.5.5. Place the tip of the micropipette containing about 200 µL acetone into the aluminum block. Insert the glass slide into the receiving slot in the aluminum block. Inject the acetone into the block with slow, steady pressure on the plunger while holding the pipette firmly in place. Wait 3 to 5 seconds for the filter to clear, then remove the pipette and slide from the aluminum block.

6.5.6. Immediately (less than 30 seconds) place 2.5 to 3.5 µL of triacetin on the filter (Note: Waiting longer than 30 seconds will result in increased index of refraction and decreased contrast between the fibers and the preparation. This may also lead to separation of the cover slip from the slide).

6.5.7. Lower a cover slip gently onto the filter at a slight angle to reduce the possibility of forming air bubbles. If more than 30 seconds have elapsed between acetone exposure and triacetin application, glue the edges of the cover slip to the slide with lacquer or nail polish.

6.5.8. If clearing is slow, warm the slide for 15 min on a hot plate having a surface temperature of about 50 °C to hasten clearing The top of the hot block can be used if the slide is not heated too long.

6.5.9. Counting may proceed immediately after clearing and mounting are completed.

6.6. Sample Analysis

Completely align the microscope according to the manufacturer's instructions. Then, align the microscope using the following general alignment routine at the beginning of every counting session and more often if necessary.

6.6.1. Alignment

(1) Clean all optical surfaces. Even a small amount of dirt can significantly degrade the image.

(2) Rough focus the objective on a sample.

(3) Close down the field iris so that it is visible in the field of view. Focus the image of the iris with the condenser focus. Center the image of the iris in the field of view.

(4) Install the phase telescope and focus on the phase rings. Critically center the rings. Misalignment of the rings results in astigmatism which will degrade the image.

(5) Place the phase-shift test slide on the microscope stage and focus on the lines. The analyst must see line set 3 and should see at least parts of 4 and 5 but, not see line set 6 or 6. A microscope/microscopist combination which does not pass this test may not be used.

6.6.2. Counting Fibers

(1) Place the prepared sample slide on the mechanical stage of the microscope. Position the center of the wedge under the objective lens and focus upon the sample.

(2) Start counting from one end of the wedge and progress along a radial line to the other end (count in either direction from perimeter to wedge tip). Select fields randomly, without looking into the eyepieces, by slightly advancing the slide in one direction with the mechanical stage control.

(3) Continually scan over a range of focal planes (generally the upper 10 to 15 μm of the filter surface) with the fine focus control during each field count. Spend at least 5 to 15 seconds per field.

(4) Most samples will contain asbestos fibers with fiber diameters less than 1 μm. Look carefully for faint fiber images. The small diameter fibers will be very hard to see. However, they are an important contribution to the total count.

(5) Count only fibers equal to or longer than 5 μm. Measure the length of curved fibers along the curve.

(6) Count fibers which have a length to width ratio of 3:1 or greater.

(7) Count all the fibers in at least 20 fields. Continue counting until either 100 fibers are counted or 100 fields have been viewed; whichever occurs first. Count all the fibers in the final field.

(8) Fibers lying entirely within the boundary of the Walton-Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle shall receive a count of ½. Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area. If a fiber touches the circle, it is considered to cross the line.

(9) Count bundles of fibers as one fiber unless individual fibers can be clearly identified and each individual fiber is clearly not connected to another counted fiber. See Figure 2 for counting conventions.

(10) Record the number of fibers in each field in a consistent way such that filter non-uniformity can be assessed.

(11) Regularly check phase ring alignment.

(12) When an agglomerate (mass of material) covers more than 25% of the field of view, reject the field and select another. Do not include it in the number of fields counted.

(13) Perform a "blind recount" of 1 in every 10 filter wedges (slides). Re-label the slides using a person other than the original counter.

6.7. Fiber Identification

As previously mentioned in Section 1.3., PCM does not provide positive confirmation of asbestos fibers. Alternate differential counting techniques should be used if discrimination is desirable. Differential counting may include primary discrimination based on morphology, polarized light analysis of fibers, or modification of PCM data by Scanning Electron or Transmission Electron Microscopy.

A great deal of experience is required to routinely and correctly perform differential counting. It is discouraged unless it is legally necessary. Then, only if a fiber is obviously not asbestos should it be excluded from the count. Further discussion of this technique can be found in reference 8.10.

If there is a question whether a fiber is asbestos or not, follow the rule:

"WHEN IN DOUBT, COUNT."

6.8. Analytical Recommendations—Quality Control System

6.8.1. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos or an equivalent course.

6.8.2. Each laboratory engaged in asbestos counting shall set up a slide trading arrangement with at least two other laboratories in order to compare performance and eliminate inbreeding of error. The slide exchange occurs at least semiannually. The round robin results shall be posted where all analysts can view individual analyst's results.

6.8.3. Each laboratory engaged in asbestos counting shall participate in the Proficiency Analytical Testing Program, the Asbestos Analyst Registry or equivalent.

6.8.4. Each analyst shall select and count prepared slides from a "slide bank". These are quality assurance counts. The slide bank shall be prepared using uniformly distributed samples taken from the workload. Fiber densities should cover the entire range routinely analyzed by the laboratory. These slides are counted blind by all counters to establish an original standard deviation. This historical distribution is compared with the quality assurance counts. A counter must have 95% of all quality control samples counted within three standard deviations of the historical mean. This count is then integrated into a new historical mean and standard deviation for the slide.

The analyses done by the counters to establish the slide bank may be used for an interim quality control program if the data are treated in a proper statistical fashion.

7. CALCULATIONS

7.1. Calculate the estimated airborne asbestos fiber concentration on the filter sample using the following formula:

where:

AC=Airborne fiber concentration

$$AC = \frac{\left[\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right)\right] \times ECA}{1000 \times FR \times T \times MFA}$$

FB=Total number of fibers greater than 5 μm counted

FL=Total number of fields counted on the filter

BFB=Total number of fibers greater than 5 μm counted in the blank

BFL=Total number of fields counted on the blank

ECA=Effective collecting area of filter (385 mm^2 nominal for a 25-mm filter.)

FR=Pump flow rate (L/min)

MFA=Microscope count field area (mm^2). This is 0.00785 mm^2 for a Walton-Beckett Graticule.

T=Sample collection time (min)

1,000=Conversion of L to cc

Note: The collection area of a filter is seldom equal to 385 mm^2. It is appropriate for laboratories to routinely monitor the exact diameter using an inside micrometer. The collection area is calculated according to the formula:

$Area = \pi(d/2)^2$

7.2. Short-cut Calculation

Since a given analyst always has the same interpupillary distance, the number of fields per filter for a particular analyst will remain constant for a given size filter. The field size for that analyst is constant (i.e. the analyst is using an assigned microscope and is not changing the reticle).

For example, if the exposed area of the filter is always 385 mm^2 and the size of the field is always 0.00785 mm^2, the number of fields per filter will always be 49,000. In addition it is necessary to convert liters of air to cc. These three constants can then be combined such that ECA/(1,000 X MFA)=49. The previous equation simplifies to:

$$AC = \frac{\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right) \times 49}{FR \times T}$$

7.3. Recount Calculations

As mentioned in step 13 of Section 6.6.2., a "blind recount" of 10% of the slides is performed. In all cases, differences will be observed between the first and second counts of the same filter wedge. Most of these differences will be due to chance alone, that is, due to the random variability (precision) of the count method. Statistical recount criteria enables one to decide whether observed differences can be explained due to chance alone or are probably due to systematic differences between analysts, microscopes, or other biasing factors.

The following recount criterion is for a pair of counts that estimate AC in fibers/cc. The criterion is given at the type-I error level. That is, there is 5% maximum risk that we will reject a pair of counts for the reason that one might be biased, when the large observed difference is really due to chance.

Reject a pair of counts if:

$$\left|\sqrt{AC_2} - \sqrt{AC_1}\right| > 2.78 \times \left(\sqrt{AC_{avg}}\right) \times CV_{FB}$$

Where:

AC1=lower estimated airborne fiber concentration

AC2=higher estimated airborne fiber concentration

ACavg=average of the two concentration estimates

CV_{FB}=CV for the average of the two concentration estimates

If a pair of counts are rejected by this criterion then, recount the rest of the filters in the submitted set. Apply the test and reject any other pairs failing the test. Rejection shall include a memo to the industrial hygienist stating that the sample failed a statistical test for homogeneity and the true air concentration may be significantly different than the reported value.

7.4. Reporting Results

Report results to the industrial hygienist as fibers/cc. Use two significant figures. If multiple analyses are performed on a sample, an average of the results is to be reported unless any of the results can be rejected for cause.

8. References

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8.3. Bayer, S.G., Zumwalde, R.D., Brown, T.A., *Equipment and Procedure for Mounting Millipore Filters and Counting Asbestos Fibers by Phase Contrast Microscopy*, Bureau of Occupational Health, U.S. Dept. of Health, Education and Welfare, Cincinnati, OH, 1969.

8.4. *NIOSH Manual of Analytical Methods*, 2nd ed., Vol. 1 (DHEW/NIOSH Pub. No. 77–157–A). National Institute for Occupational Safety and Health, Cincinnati, OH, 1977. pp. 239–1-239–21.

8.5. *Asbestos*, Code of Federal Regulations 29 CFR 1910.1001. 1971.

8.6. *Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite. Final Rule*, **Federal Register** 51:119 (20 June 1986). pp.22612–22790.

8.7. *Asbestos, Tremolite, Anthophyllite, and Actinolite*, Code of Federal Regulations 1910.1001. 1988. pp 711–752.

8.8. *Criteria for a Recommended Standard—Occupational Exposure to Asbestos* (DHEW/NIOSH Pub. No. HSM 72–10267), National Institute for Occupational Safety and Health NIOSH, Cincinnati,OH, 1972. pp. III–1–III–24.

8.9. Leidel, N.A., Bayer,S.G., Zumwalde, R.D.,Busch, K.A., *USPHS/NIOSH Membrane Filter Method for Evaluating Airborne Asbestos Fibers* (DHEW/NIOSH Pub. No. 79–127). National Institute for Occupational Safety and Health, Cincinnati, OH, 1979.

8.10. Dixon, W.C., *Applications of Optical Microscopy in Analysis of Asbestos and Quartz*, Analytical Techniques in Occupational Health Chemistry, edited by D.D. Dollberg and A.W. Verstuyft. Wash.-D.C.: American Chemical Society, (ACS Symposium Series 120) 1980. pp. 13–41.

Quality Control

The OSHA asbestos regulations require each laboratory to establish a quality control program. The following is presented as an example of how the OSHA-SLTC constructed its internal CV curve as part of meeting this requirement. Data for the CV curve shown below is from 395 samples collected during OSHA compliance inspections and analyzed from October 1980 through April 1986.

Each sample was counted by 2 to 5 different counters independently of one another. The standard deviation and the CV statistic was calculated for each sample. This data was then plotted on a graph of CV vs. fibers/mm². A least squares regression was performed using the following equation:

$CV=\text{antilog}_{10}[A(\log_{10}(x))^2+B(\log_{10}(x))+C]$

where:

x=the number of fibers/mm²

Application of least squares gave:

A=0.182205

B=−0.973343

C=0.327499

Using these values, the equation becomes:

$CV=\text{antilog}_{10}[0.182205(\log_{10}(x))^2-0.973343(\log_{10}(x))+0.327499]$

Sampling Pump Flow Rate Corrections

This correction is used if a difference greater than 5% in ambient temperature and/or pressure is noted between calibration and sampling sites and the pump does not compensate for the differences.

$$Q_{act}=Q_{cal}\times\sqrt{\left(\frac{P_{cal}}{P_{act}}\right)\times\left(\frac{T_{act}}{T_{cal}}\right)}$$

Where:

Q_{act}=actual flow rate

Q_{cal}=calibrated flow rate (if a rotameter was used, the rotameter value)

P_{cal}=uncorrected air pressure at calibration

P_{act}=uncorrected air pressure at sampling site

T_{act}=temperature at sampling site (K)

T_{cal}=temperature at calibration (K)

Walton-Beckett Graticule

When ordering the Graticule for asbestos counting, specify the exact disc diameter needed to fit the ocular of the microscope and the diameter (mm) of the circular counting area. Instructions for measuring the dimensions necessary are listed:

(1) Insert any available graticule into the focusing eyepiece and focus so that the graticule lines are sharp and clear.

(2) Align the microscope.

(3) Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.

(4) Measure the magnified grid length, PL (μm), using the stage micrometer.

(5) Remove the graticule from the microscope and measure its actual grid length, AL (mm). This can be accomplished by using a mechanical stage fitted with verniers, or a jeweler's loupe with a direct reading scale.

(6) Let D=100 μm. Calculate the circle diameter, d_c (mm), for the Walton-Beckett graticule and specify the diameter when making a purchase:

$$d_c=\frac{AL\times D}{PL}$$

Example: If PL=108 μm, AL=2.93 mm and D=100 μm, then,

$$d_c=\frac{2.93\times 100}{108}=2.71\text{mm}$$

(7) Each eyepiece-objective-reticle combination on the microscope must be calibrated. Should any of the three be changed (by zoom adjustment, disassembly, replacement, etc.), the combination must be recalibrated. Calibration may change if interpupillary distance is changed. Measure the field diameter, D (acceptable range: 100±2 μm) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine the field area (mm²).

Field Area=π(D/2)2

If D=100 μm=0.1 mm, then

Field Area=π(0.1 mm/2)²=0.00785 mm²

The Graticule is available from: Graticules Ltd., Morley Road, Tonbridge TN9 IRN, Kent, England (Telephone 011–44–732–359061). Also available from PTR Optics Ltd., 145 Newton Street, Waltham, MA 02154 [telephone (617) 891–6000] or McCrone Accessories and Components, 2506 S. Michigan Ave., Chicago, IL 60616 [phone (312)-842–7100]. The graticule is custom made for each microscope.

COUNTS FOR THE FIBERS IN THE FIGURE

Structure No.	Count	Explanation
1 to 6	1	Single fibers all contained within the circle.
7	½	Fiber crosses circle once.
8	0	Fiber too short.
9	2	Two crossing fibers.
10	0	Fiber outside graticule.
11	0	Fiber crosses graticule twice.
12	½	Although split, fiber only crosses once.

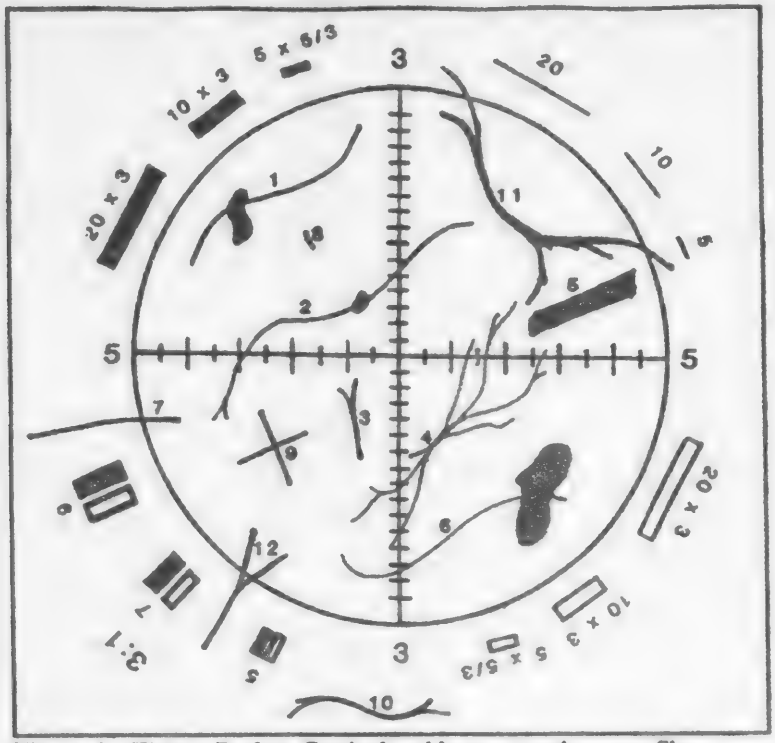

Figure 1: Walton-Beckett Graticule with some explanatory fibers.

9. Appendix D to § 1910.1001 is amended by revising the first sentence to read as follows:

Appendix D to 1910.1001—Medical Questionnaires; Mandatory

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos above the permissible exposure limit, and who will therefore be included in their employer's medical surveillance program. * * *

* * * * *

10. Appendix F to § 1910.1001 is revised to read as follows:

Appendix F to § 1910.1001—Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair and Assembly—Mandatory

This mandatory appendix specifies engineering controls and work practices that must be implemented by the employer during automotive brake and clutch inspection, disassembly, repair, and assembly operations. Proper use of these engineering controls and work practices will reduce employees' asbestos exposure below the permissible exposure level during clutch and brake inspection, disassembly, repair, and assembly operations. The employer shall institute engineering controls and work practices using either the method set forth in paragraph [A] or paragraph [B] of this appendix, or any other method which the employer can demonstrate to be equivalent in terms of reducing employee exposure to asbestos as defined and which meets the requirements described in paragraph [C] of this appendix, for those facilities in which no more than 5 pairs of brakes or 5 clutches are inspected, disassembled, reassembled and/or repaired per week, the method set forth in paragraph [D] of this appendix may be used:

[A] Negative Pressure Enclosure/HEPA Vacuum System Method

(1) The brake and clutch inspection, disassembly, repair, and assembly operations shall be enclosed to cover and contain the clutch or brake assembly and to prevent the release of asbestos fibers into the worker's breathing zone.

(2) The enclosure shall be sealed tightly and thoroughly inspected for leaks before work begins on brake and clutch inspection, disassembly, repair, and assembly.

(3) The enclosure shall be such that the worker can clearly see the operation and shall provide impermeable sleeves through which the worker can handle the brake and clutch inspection, disassembly, repair and assembly. The integrity of the sleeves and ports shall be examined before work begins.

(4) A HEPA-filtered vacuum shall be employed to maintain the enclosure under negative pressure throughout the operation. Compressed-air may be used to remove asbestos fibers or particles from the enclosure.

(5) The HEPA vacuum shall be used first to loosen the asbestos containing residue from the brake and clutch parts and then to evacuate the loosened asbestos containing material from the enclosure and capture the material in the vacuum filter.

(6) The vacuum's filter, when full, shall be first wetted with a fine mist of water, then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(2)(ii) of this section and disposed of according to paragraph (k) of this section.

(7) Any spills or releases of asbestos containing waste material from inside of the enclosure or vacuum hose or vacuum filter shall be immediately cleaned up and disposed of according to paragraph (k) of the section.

[B] Low Pressure/Wet Cleaning Method

(1) A catch basin shall be placed under the brake assembly, positioned to avoid splashes and spills.

(2) The reservoir shall contain water containing an organic solvent or wetting agent. The flow of liquid shall be controlled such that the brake assembly is gently flooded to prevent the asbestos-containing brake dust from becoming airborne.

(3) The aqueous solution shall be allowed to flow between the brake drum and brake support before the drum is removed.

(4) After removing the brake drum, the wheel hub and back of the brake assembly shall be thoroughly wetted to suppress dust.

(5) The brake support plate, brake shoes and brake components used to attach the brake shoes shall be thoroughly washed before removing the old shoes.

(6) In systems using filters, the filters, when full, shall be first wetted with a fine mist of water, then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(2)(ii) of this section and disposed of according to paragraph (k) of this section.

(7) Any spills of asbestos-containing aqueous solution or any asbestos-containing waste material shall be cleaned up immediately and disposed of according to paragraph (k) of this section.

(8) The use of dry brushing during low pressure/wet cleaning operations is prohibited.

[C] Equivalent Methods

An equivalent method is one which has sufficient written detail so that it can be reproduced and has been demonstrated that the exposures resulting from the equivalent method are equal to or less than the exposures which would result from the use of the method described in paragraph [A] of this appendix. For purposes of making this comparison, the employer shall assume that exposures resulting from the use of the method described in paragraph [A] of this appendix shall not exceed 0.004 f/cc, as measured by the OSHA reference method and as averaged over at least 18 personal samples.

[D] Wet Method.

(1) A spray bottle, hose nozzle, or other implement capable of delivering a fine mist of water or amended water or other delivery system capable of delivering water at low pressure, shall be used to first thoroughly wet the brake and clutch parts. Brake and clutch components shall then be wiped clean with a cloth.

(2) The cloth shall be placed in an impermeable container, labelled according to paragraph (j)(2)(ii) of the standard and then disposed of according to paragraph (k) of the standard, or the cloth shall be laundered in a way to prevent the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air.

(3) Any spills of solvent or any asbestos containing waste material shall be cleaned up immediately according to paragraph (k) of the standard.

(4) The use of dry brushing during the wet method operations is prohibited.

Appendix G to § 1910.1001 [Amended]

11. Appendix G of § 1910.1001 is amended by replacing the phrase "0.2 f/cc" with the phrase "0.1 f/cc" in paragraph I. D. entitled "Permissible exposure:"..

12. Appendix G of § 1910.1001 is amended by replacing the phrase "0.2 f/cc" with the phrase "0.1 f/cc" in paragraph III.A. entitled "Respirators:".

13. Appendix G of § 1910.1001 is amended by revising paragraph III. B. to read as follows:

III. * * *

B. Protective clothing: You are required to wear protective clothing in work areas where asbestos fiber concentrations exceed to permissible exposure limit.

* * * * *

Appendix H to § 1910.1001 [Amended]

14. Appendix H of § 1910.1001 is amended by revising the first sentence of the second paragraph of section IV. entitled *Surveillance and Preventive Considerations* to read as follows:

* * * * *

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limit (0.1 fiber per cubic centimeter of air).

* * *

* * * * *

15. Appendix J to § 1910.1001 is added to read as follows:

Appendix J to § 1910.1001—Polarized Light Microscopy of Asbestos—Non-Mandatory)

Method number: ID–191
Matrix: Bulk

Collection Procedure

Collect approximately 1 to 2 grams of each type of material and place into separate 20 mL scintillation vials.

Analytical Procedure

A portion of each separate phase is analyzed by gross examination, phase-polar examination, and central stop dispersion microscopy.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL–OSHA. Similar products from other sources may be substituted.

1. Introduction

This method describes the collection and analysis of asbestos bulk materials by light microscopy techniques including phase-polar illumination and central-stop dispersion microscopy. Some terms unique to asbestos analysis are defined below:

Amphibole: A family of minerals whose crystals are formed by long, thin units which have two thin ribbons of double chain silicate with a brucite ribbon in between. The shape of each unit is similar to an "I beam". Minerals important in asbestos analysis include cummingtonite-grunerite, crocidolite, tremolite-actinolite and anthophyllite.

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, cummingtonite-grunerite asbestos (amosite), anthophyllite asbestos, tremolite asbestos, crocidolite, actinolite asbestos and any of these minerals which have been chemically treated or altered. The precise chemical formulation of each species varies with the location from which it was mined. Nominal compositions are listed:

Chrysotile ..... $Mg_3Si_2O_5(OH)_4$
Crocidolite (Riebeckite asbestos) ..... $Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$
Cummingtonite-Grunerite asbestos (Amosite)..... $(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-Actinolite asbestos ..... $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite asbestos ...$(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos meeting the criteria for a fiber. (See section 3.5.)

Aspect Ratio: The ratio of the length of a fiber to its diameter usually defined as "length : width", e.g. 3:1.

Brucite: A sheet mineral with the composition $Mg(OH)_2$.

Central Stop Dispersion Staining (microscope): This is a dark field microscope technique that images particles using only light refracted by the particle, excluding light that travels through the particle unrefracted. This is usually accomplished with a McCrone objective or other arrangement which places a circular stop with apparent aperture equal to the objective aperture in the back focal plane of the microscope.

Cleavage Fragments: Mineral particles formed by the comminution of minerals, especially those characterized by relatively parallel sides and moderate aspect ratio.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from a phase contrast asbestos count because they are not asbestos.

Fiber: A particle longer than or equal to 5 µm with a length to width ratio greater than or equal to 3:1. This may include cleavage fragments. (see section 3.5 of this appendix).

Phase Contrast: Contrast obtained in the microscope by causing light scattered by small particles to destructively interfere with unscattered light, thereby enhancing the visibility of very small particles and particles with very low intrinsic contrast.

Phase Contrast Microscope: A microscope configured with a phase mask pair to create phase contrast. The technique which uses this is called Phase Contrast Microscopy (PCM).

Phase-Polar Analysis: This is the use of polarized light in a phase contrast microscope. It is used to see the same size fibers that are visible in air filter analysis. Although fibers finer than 1 µm are visible, analysis of these is inferred from analysis of larger bundles that are usually present.

Phase-Polar Microscope: The phase-polar microscope is a phase contrast microscope which has an analyzer, a polarizer, a first order red plate and a rotating phase condenser all in place so that the polarized light image is enhanced by phase contrast.

Sealing Encapsulant: This is a product which can be applied, preferably by spraying, onto an asbestos surface which will seal the surface so that fibers cannot be released.

Serpentine: A mineral family consisting of minerals with the general composition $Mg_3(Si2O_5(OH)_4$ having the magnesium in brucite layer over a silicate layer. Minerals important in asbestos analysis included in this family are chrysotile, lizardite, antigorite.

1.1. History

Light microscopy has been used for well over 100 years for the determination of mineral species. This analysis is carried out using specialized polarizing microscopes as well as bright field microscopes. The identification of minerals is an on-going process with many new minerals described each year. The first recorded use of asbestos was in Finland about 2500 B.C. where the material was used in the mud wattle for the wooden huts the people lived in as well as strengthening for pottery. Adverse health aspects of the mineral were noted nearly 2000 years ago when Pliny the Younger wrote about the poor health of slaves in the asbestos mines. Although known to be injurious for centuries, the first modern references to its toxicity were by the British Labor Inspectorate when it banned asbestos dust from the workplace in 1898. Asbestosis cases were described in the literature after the turn of the century. Cancer was first suspected in the mid 1930's and a causal link to mesothelioma was made in 1965. Because of the public concern for worker and public safety with the use of this material, several different types of analysis were applied to the determination of asbestos content. Light microscopy requires a great deal of experience and craft. Attempts were made to apply less subjective methods to the analysis. X-ray diffraction was partially successful in determining the mineral types but was unable to separate out the fibrous portions from the non-fibrous portions. Also, the minimum detection limit for asbestos analysis by X-ray diffraction (XRD) is about 1%. Differential Thermal Analysis (DTA) was no more successful. These provide useful corroborating information when the presence of asbestos has been shown by microscopy; however, neither can determine the difference between fibrous and non-fibrous minerals when both habits are present. The same is true of Infrared Absorption (IR).

When electron microscopy was applied to asbestos analysis, hundreds of fibers were discovered present too small to be visible in any light microscope. There are two different types of electron microscope used for asbestos analysis: Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). Scanning Electron Microscopy is useful in identifying minerals. The SEM can provide two of the three pieces of information required to identify fibers by electron microscopy: morphology and chemistry. The third is structure as determined by Selected Area Electron Diffraction—SAED which is performed in the TEM. Although the resolution of the SEM is sufficient for very fine fibers to be seen, accuracy of chemical analysis that can be performed on the fibers varies with fiber diameter in fibers of less than 0.2 μm diameter. The TEM is a powerful tool to identify fibers too small to be resolved by light microscopy and should be used in conjunction with this method when necessary. The TEM can provide all three pieces of information required for fiber identification. Most fibers thicker than 1 μm can adequately be defined in the light microscope. The light microscope remains as the best instrument for the determination of mineral type. This is because the minerals under investigation were first described analytically with the light microscope. It is inexpensive and gives positive identification for most samples analyzed. Further, when optical techniques are inadequate, there is ample indication that alternative techniques should be used for complete identification of the sample.

1.2. Principle

Minerals consist of atoms that may be arranged in random order or in a regular arrangement. Amorphous materials have atoms in random order while crystalline materials have long range order. Many materials are transparent to light, at least for small particles or for thin sections. The properties of these materials can be investigated by the effect that the material has on light passing through it. The six asbestos minerals are all crystalline with particular properties that have been identified and cataloged. These six minerals are anisotropic. They have a regular array of atoms, but the arrangement is not the same in all directions. Each major direction of the crystal presents a different regularity. Light photons travelling in each of these main directions will encounter different electrical neighborhoods, affecting the path and time of travel. The techniques outlined in this method use the fact that light traveling through fibers or crystals in different directions will behave differently, but predictably. The behavior of the light as it travels through a crystal can be measured and compared with known or determined values to identify the mineral species. Usually, Polarized Light Microscopy (PLM) is performed with strain-free objectives on a bright-field microscope platform. This would limit the resolution of the microscope to about 0.4 μm. Because OSHA requires the counting and identification of fibers visible in phase contrast, the phase contrast platform is used to visualize the fibers with the polarizing elements added into the light path. Polarized light methods cannot identify fibers finer than about 1 μm in diameter even though they are visible. The finest fibers are usually identified by inference from the presence of larger, identifiable fiber bundles. When fibers are present, but not identifiable by light microscopy, use either SEM or TEM to determine the fiber identity.

1.3. Advantages and Disadvantages

The advantages of light microcopy are:

(a) Basic identification of the materials was first performed by light microscopy and gross analysis. This provides a large base of published information against which to check analysis and analytical technique.

(b) The analysis is specific to fibers. The minerals present can exist in asbestiform, fibrous, prismatic, or massive varieties all at the same time. Therefore, bulk methods of analysis such as X-ray diffraction, IR analysis, DTA, etc. are inappropriate where the material is not known to be fibrous.

(c) The analysis is quick, requires little preparation time, and can be performed on-site if a suitably equipped microscope is available.

The disadvantages are:

(a) Even using phase-polar illumination, not all the fibers present may be seen. This is a problem for very low asbestos concentrations where agglomerations or large bundles of fibers may not be present to allow identification by inference.

(b) The method requires a great degree of sophistication on the part of the microscopist. An analyst is only as useful as his mental catalog of images. Therefore, a microscopist's accuracy is enhanced by experience. The mineralogical training of the analyst is very important. It is the basis on which subjective decisions are made.

(c) The method uses only a tiny amount of material for analysis. This may lead to sampling bias and false results (high or low). This is especially true if the sample is severely inhomogeneous.

(d) Fibers may be bound in a matrix and not distinguishable as fibers so identification cannot be made.

1.4. Method Performance

1.4.1. This method can be used for determination of asbestos content from 0 to 100% asbestos. The detection limit has not been adequately determined, although for selected samples, the limit is very low, depending on the number of particles examined. For mostly homogeneous, finely divided samples, with no difficult fibrous interferences, the detection limit is below 1%. For inhomogeneous samples (most samples), the detection limit remains undefined. NIST has conducted proficiency testing of laboratories on a national scale. Although each round is reported statistically with an average, control limits, etc., the results indicate a difficulty in establishing precision especially in the low concentration range. It is suspected that there is significant bias in the low range especially near 1%. EPA tried to remedy this by requiring a mandatory point counting scheme for samples less than 10%. The point counting procedure is tedious, and may introduce significant biases of its own. It has not been incorporated into this method.

1.4.2. The precision and accuracy of the quantitation tests performed in this method are unknown. Concentrations are easier to determine in commercial products where asbestos was deliberately added because the amount is usually more than a few percent. An analyst's results can be "calibrated" against the known amounts added by the manufacturer. For geological samples, the degree of homogeneity affects the precision.

1.4.3. The performance of the method is analyst dependent. The analyst must choose carefully and not necessarily randomly the portions for analysis to assure that detection of asbestos occurs when it is present. For this reason, the analyst must have adequate training in sample preparation, and experience in the location and identification of asbestos in samples. This is usually accomplished through substantial on-the-job training as well as formal education in mineralogy and microscopy.

1.5. Interferences

Any material which is long, thin, and small enough to be viewed under the microscope can be considered an interference for asbestos. There are literally hundreds of interferences in workplaces. The techniques described in this method are normally

sufficient to eliminate the interferences. An analyst's success in eliminating the interferences depends on proper training.

Asbestos minerals belong to two mineral families: the serpentines and the amphiboles. In the serpentine family, the only common fibrous mineral is chrysotile. Occasionally, the mineral antigorite occurs in a fibril habit with morphology similar to the amphiboles. The amphibole minerals consist of a score of different minerals of which only five are regulated by federal standard: amosite, crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos. These are the only amphibole minerals that have been commercially exploited for their fibrous properties; however, the rest can and do occur occasionally in asbestiform habit.

In addition to the related mineral interferences, other minerals common in building material may present a problem for some microscopists: gypsum, anhydrite, brucite, quartz fibers, talc fibers or ribbons, wollastonite, perlite, attapulgite, etc. Other fibrous materials commonly present in workplaces are: fiberglass, mineral wool, ceramic wool, refractory ceramic fibers, kevlar, nomex, synthetic fibers, graphite or carbon fibers, cellulose (paper or wood) fibers, metal fibers, etc.

Matrix embedding material can sometimes be a negative interference. The analyst may not be able to easily extract the fibers from the matrix in order to use the method. Where possible, remove the matrix before the analysis, taking careful note of the loss of weight. Some common matrix materials are: vinyl, rubber, tar, paint, plant fiber, cement, and epoxy. A further negative interference is that the asbestos fibers themselves may be either too small to be seen in Phase contrast Microscopy (PCM) or of a very low fibrous quality, having the appearance of plant fibers. The analyst's ability to deal with these materials increases with experience.

1.6. Uses and Occupational Exposure

Asbestos is ubiquitous in the environment. More than 40% of the land area of the United States is composed of minerals which may contain asbestos. Fortunately, the actual formation of great amounts of asbestos is relatively rare. Nonetheless, there are locations in which environmental exposure can be severe such as in the Serpentine Hills of California.

There are thousands of uses for asbestos in industry and the home. Asbestos abatement workers are the most current segment of the population to have occupational exposure to great amounts of asbestos. If the material is undisturbed, there is no exposure. Exposure occurs when the asbestos-containing material is abraded or otherwise disturbed during maintenance operations or some other activity. Approximately 95% of the asbestos in place in the United States is chrysotile.

Amosite and crocidolite make up nearly all the difference. Tremolite and anthophyllite make up a very small percentage. Tremolite is found in extremely small amounts in certain chrysotile deposits. Actinolite exposure is probably greatest from environmental sources, but has been identified in vermiculite containing, sprayed-on insulating materials which may have been certified as asbestos-free.

1.7. Physical and Chemical Properties

The nominal chemical compositions for the asbestos minerals were given in Section 1. Compared to cleavage fragments of the same minerals, asbestiform fibers possess a high tensile strength along the fiber axis. They are chemically inert, non- combustible, and heat resistant. Except for chrysotile, they are insoluble in Hydrochloric acid (HCl). Chrysotile is slightly soluble in HCl. Asbestos has high electrical resistance and good sound absorbing characteristics. It can be woven into cables, fabrics or other textiles, or matted into papers, felts, and mats.

1.8. Toxicology (This Section is for Information Only and Should Not Be Taken as OSHA Policy)

Possible physiologic results of respiratory exposure to asbestos are mesothelioma of the pleura or peritoneum, interstitial fibrosis, asbestosis, pneumoconiosis, or respiratory cancer. The possible consequences of asbestos exposure are detailed in the NIOSH Criteria Document or in the OSHA Asbestos Standards 29 CFR 1910.1001 and 29 CFR 1926.1101.

2. Sampling Procedure

2.1. Equipment for Sampling

(a) Tube or cork borer sampling device
(b) Knife
(c) 20 mL scintillation vial or similar vial
(d) Sealing encapsulant

2.2. Safety Precautions

Asbestos is a known carcinogen. Take care when sampling. While in an asbestos-containing atmosphere, a properly selected and fit-tested respirator should be worn. Take samples in a manner to cause the least amount of dust. Follow these general guidelines:

(a) Do not make unnecessary dust.
(b) Take only a small amount (1 to 2 g).
(c) Tightly close the sample container.
(d) Use encapsulant to seal the spot where the sample was taken, if necessary.

2.3. Sampling Procedure

Samples of any suspect material should be taken from an inconspicuous place. Where the material is to remain, seal the sampling wound with an encapsulant to eliminate the potential for exposure from the sample site. Microscopy requires only a few milligrams of material. The amount that will fill a 20 mL scintillation vial is more than adequate. Be sure to collect samples from all layers and phases of material. If possible, make separate samples of each different phase of the material. This will aid in determining the actual hazard. *DO NOT USE ENVELOPES, PLASTIC OR PAPER BAGS OF ANY KIND TO COLLECT SAMPLES.* The use of plastic bags presents a contamination hazard to laboratory personnel and to other samples. When these containers are opened, a bellows effect blows fibers out of the container onto everything, including the person opening the container.

If a cork-borer type sampler is available, push the tube through the material all the way, so that all layers of material are sampled. Some samplers are intended to be disposable. These should be capped and sent to the laboratory. If a non-disposable cork borer is used, empty the contents into a scintillation vial and send to the laboratory Vigorously and completely clean the cork borer between samples.

2.4 Shipment

Samples packed in glass vials must not touch or they might break in shipment.

(a) Seal the samples with a sample seal (such as the OSHA 21) over the end to guard against tampering and to identify the sample.

(b) Package the bulk samples in separate packages from the air samples. They may cross-contaminate each other and will invalidate the results of the air samples.

(c) Include identifying paperwork *with* the samples, but not in contact with the suspected asbestos.

(d) To maintain sample accountability, ship the samples by certified mail, overnight express, or hand carry them to the laboratory.

3. Analysis

The analysis of asbestos samples can be divided into two major parts: sample preparation and microscopy. Because of the different asbestos uses that may be encountered by the analyst, each sample may need different preparation steps. The choices are outlined below. There are several different tests that are performed to identify the asbestos species and determine the percentage. They will be explained below.

3.1. Safety

(a) Do not create unnecessary dust. Handle the samples in HEPA-filter equipped hoods. If samples are received in bags, envelopes or other inappropriate container, open them only in a hood having a face velocity at or greater than 100 fpm. Transfer a small amount to a scintillation vial and only handle the smaller amount.

(b) Open samples in a hood, never in the open lab area.

(c) Index of refraction oils can be toxic. Take care not to get this material on the skin. Wash immediately with soap and water if this happens.

(d) Samples that have been heated in the muffle furnace or the drying oven may be hot. Handle them with tongs until they are cool enough to handle.

(e) Some of the solvents used, such as THF (tetrahydrofuran), are toxic and should only be handled in an appropriate fume hood and according to instructions given in the Material Safety Data Sheet (MSDS).

3.2. Equipment

(a) Phase contrast microscope with 10x, 16x and 40x objectives, 10x wide-field eyepieces, G–22 Walton-Beckett graticule, Whipple disk, polarizer, analyzer and first order red or gypsum plate, 100 Watt illuminator, rotating position condenser with oversize phase rings, central stop dispersion objective, Kohler illumination and a rotating mechanical stage.

(b) Stereo microscope with reflected light illumination, transmitted light illumination, polarizer, analyzer and first order red or gypsum plate, and rotating stage.

(c) Negative pressure hood for the stereo microscope

(d) Muffle furnace capable of 600 °C
(e) Drying oven capable of 50—150 °C
(f) Aluminum specimen pans
(g) Tongs for handling samples in the furnace
(h) High dispersion index of refraction oils (Special for dispersion staining.)

n = 1.550
n = 1.585
n = 1.590
n = 1.605
n = 1.620
n = 1.670
n = 1.680
n = 1.690

(i) A set of index of refraction oils from about n=1.350 to n=2.000 in n=0.005 increments. (Standard for Becke line analysis.)
(j) Glass slides with painted or frosted ends 1×3 inches 1mm thick, precleaned.
(k) Cover Slips 22×22 mm, #1½
(l) Paper clips or dissection needles
(m) Hand grinder
(n) Scalpel with both #10 and #11 blades
(o) 0.1 molar HCl
(p) Decalcifying solution (Baxter Scientific Products) Ethylenediaminetetraacetic Acid,

Tetrasodium	0.7 g/l
Sodium Potassium Tartrate	8.0 mg/liter
Hydrochloric Acid	99.2 g/liter
Sodium Tartrate	0.14 g/liter

(q) Tetrahydrofuran (THF)
(r) Hotplate capable of 60 °C
(s) Balance
(t) Hacksaw blade
(u) Ruby mortar and pestle

3.3. Sample Pre-Preparation

Sample preparation begins with pre-preparation which may include chemical reduction of the matrix, heating the sample to dryness or heating in the muffle furnace. The end result is a sample which has been reduced to a powder that is sufficiently fine to fit under the cover slip. Analyze different phases of samples separately, e.g., tile and the tile mastic should be analyzed separately as the mastic may contain asbestos while the tile may not.

(a) *Wet samples*

Samples with a high water content will not give the proper dispersion colors and must be dried prior to sample mounting. Remove the lid of the scintillation vial, place the bottle in the drying oven and heat at 100 °C to dryness (usually about 2 h). Samples which are not submitted to the lab in glass must be removed and placed in glass vials or aluminum weighing pans before placing them in the drying oven.

(b) *Samples With Organic Interference—Muffle Furnace*

These may include samples with tar as a matrix, vinyl asbestos tile, or any other organic that can be reduced by heating. Remove the sample from the vial and weigh in a balance to determine the weight of the submitted portion. Place the sample in a muffle furnace at 500 °C for 1 to 2 h or until all obvious organic material has been removed. Retrieve, cool and weigh again to determine the weight loss on ignition. This is necessary to determine the asbestos content of the submitted sample, because the analyst will be looking at a reduced sample.

Note: Heating above 600 °C will cause the sample to undergo a structural change which, given sufficient time, will convert the chrysotile to forsterite. Heating even at lower temperatures for 1 to 2 h may have a measurable effect on the optical properties of the minerals. If the analyst is unsure of what to expect, a sample of standard asbestos should be heated to the same temperature for the same length of time so that it can be examined for the proper interpretation.

(c) *Samples With Organic Interference—THF*

Vinyl asbestos tile is the most common material treated with this solvent, although, substances containing tar will sometimes yield to this treatment. Select a portion of the material and then grind it up if possible. Weigh the sample and place it in a test tube. Add sufficient THF to dissolve the organic matrix. This is usually about 4 to 5 mL. *Remember, THF is highly flammable.* Filter the remaining material through a tared silver membrane, dry and weigh to determine how much is left after the solvent extraction. Further process the sample to remove carbonate or mount directly.

(d) *Samples With Carbonate Interference*

Carbonate material is often found on fibers and sometimes must be removed in order to perform dispersion microscopy. Weigh out a portion of the material and place it in a test tube. Add a sufficient amount of 0.1 M HCl or decalcifying solution in the tube to react all the carbonate as evidenced by gas formation; i.e., when the gas bubbles stop, add a little more solution. If no more gas forms, the reaction is complete. Filter the material out through a tared silver membrane, dry and weigh to determine the weight lost.

3.4. Sample Preparation

Samples must be prepared so that accurate determination can be made of the asbestos type and amount present. The following steps are carried out in the low-flow hood (a low-flow hood has less than 50 fpm flow):

(1) If the sample has large lumps, is hard, or cannot be made to lie under a cover slip, the grain size must be reduced. Place a small amount between two slides and grind the material between them or grind a small amount in a clean mortar and pestle. The choice of whether to use an alumina, ruby, or diamond mortar depends on the hardness of the material. Impact damage can alter the asbestos mineral if too much mechanical shock occurs. (Freezer mills can completely destroy the observable crystallinity of asbestos and should not be used). For some samples, a portion of material can be shaved off with a scalpel, ground off with a hand grinder or hack saw blade.

The preparation tools should either be disposable or cleaned thoroughly. Use vigorous scrubbing to loosen the fibers during the washing. Rinse the implements with copious amounts of water and air-dry in a dust-free environment.

(2) If the sample is powder or has been reduced as in (1) above, it is ready to mount. Place a glass slide on a piece of optical tissue and write the identification on the painted or frosted end. Place two drops of index of refraction medium n=1.550 on the slide. (The medium n=1.550 is chosen because it is the matching index for chrysotile. Dip the end of a clean paper-clip or dissecting needle into the droplet of refraction medium on *the slide* to moisten it. Then dip the probe into the powder sample. Transfer what sticks on the probe to the slide. The material on the end of the probe should have a diameter of about 3 mm for a good mount. If the material is very fine, less sample may be appropriate. For non-powder samples such as fiber mats, forceps should be used to transfer a small amount of material to the slide. Stir the material in the medium on the slide, spreading it out and making the preparation as uniform as possible. Place a cover-slip on the preparation by gently lowering onto the slide and allowing it to fall "trapdoor" fashion on the preparation to push out any bubbles. Press gently on the cover slip to even out the distribution of particulate on the slide. If there is insufficient mounting oil on the slide, one or two drops may be placed near the edge of the coverslip on the slide. Capillary action will draw the necessary amount of liquid into the preparation. Remove excess oil with the point of a laboratory wiper.

Treat at least two different areas of each phase in this fashion. Choose representative areas of the sample. It may be useful to select particular areas or fibers for analysis. This is useful to identify asbestos in severely inhomogeneous samples.

When it is determined that amphiboles may be present, repeat the above process using the appropriate high-dispersion oils until an identification is made or all six asbestos minerals have been ruled out. Note that percent determination must be done in the index medium 1.550 because amphiboles tend to disappear in their matching mediums.

3.5. Analytical Procedure

Note: This method presumes some knowledge of mineralogy and optical petrography.

The analysis consists of three parts: The determination of whether there is asbestos present, what type is present and the determination of how much is present. The general flow of the analysis is:

(1) Gross examination.

(2) Examination under polarized light on the stereo microscope.

(3) Examination by phase-polar illumination on the compound phase microscope.

(4) Determination of species by dispersion stain. Examination by Becke line analysis may also be used; however, this is usually more cumbersome for asbestos determination.

(5) Difficult samples may need to be analyzed by SEM or TEM, or the results from those techniques combined with light microscopy for a definitive identification. Identification of a particle as asbestos requires that it be asbestiform. Description of particles should follow the suggestion of Campbell. (Figure 1)

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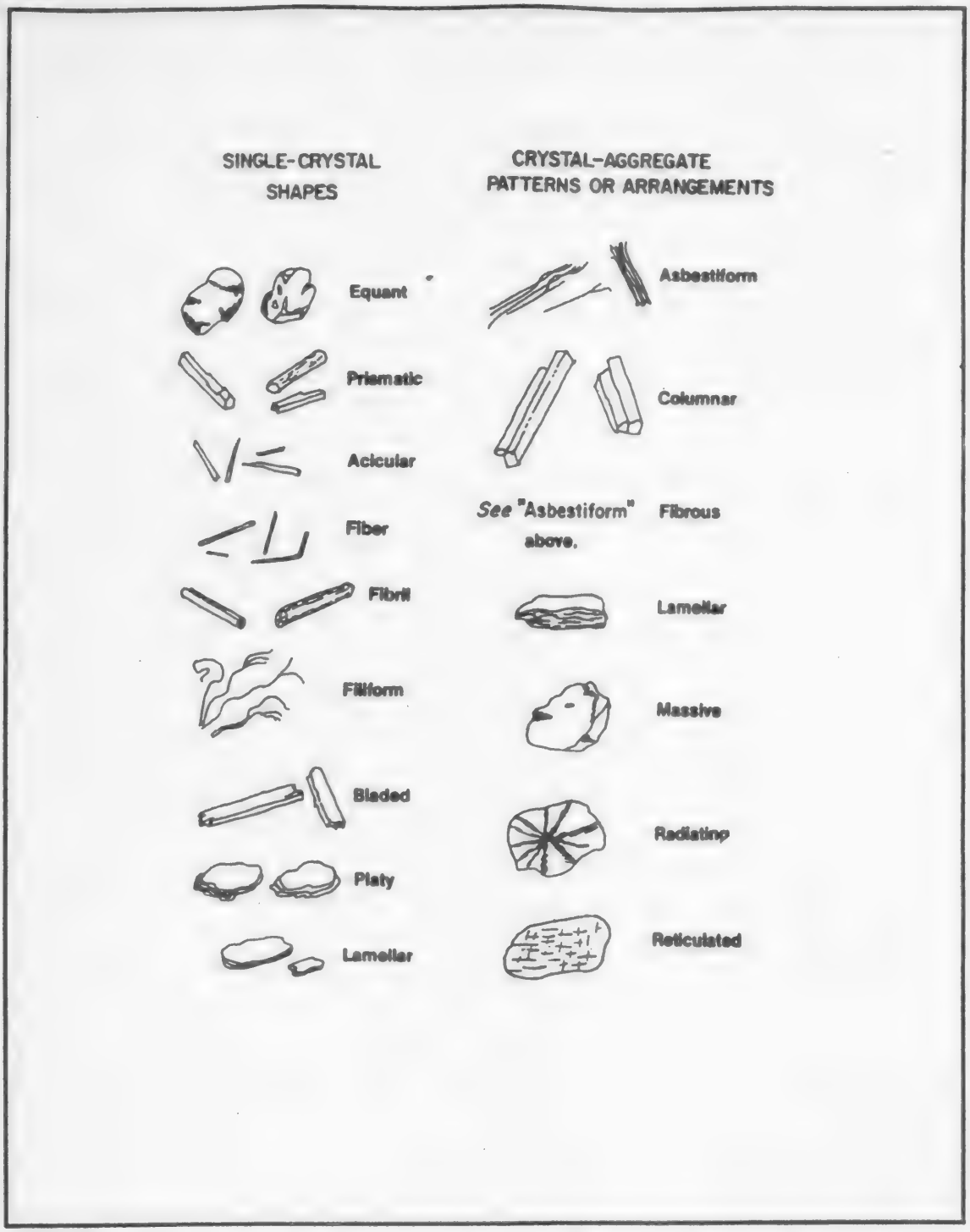

Figure 1. Particle definitions showing mineral growth habits. From the U.S. Bureau of Mines

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For the purpose of regulation, the mineral must be one of the six minerals covered and must be in the asbestos growth habit. Large specimen samples of asbestos generally have the gross appearance of wood. Fibers are easily parted from it. Asbestos fibers are very long compared with their widths. The fibers have a very high tensile strength as demonstrated by bending without breaking. Asbestos fibers exist in bundles that are easily parted, show longitudinal fine structure and may be tufted at the ends showing "bundle of sticks" morphology. In the microscope some of these properties may not be observable. Amphiboles do not always show striations along their length even when they are asbestos. Neither will they always show tufting. They generally do not show a curved nature except for very long fibers. Asbestos and asbestiform minerals are usually characterized in groups by extremely high aspect ratios (greater than 100:1). While aspect ratio analysis is useful for characterizing populations of fibers, it cannot be used to identify individual fibers of intermediate to short aspect ratio. Observation of many fibers is often necessary to determine whether a sample consists of "cleavage fragments" or of asbestos fibers.

Most cleavage fragments of the asbestos minerals are easily distinguishable from true asbestos fibers. This is because true cleavage fragments usually have larger diameters than 1 μm. Internal structure of particles larger than this usually shows them to have no internal fibrillar structure. In addition, cleavage fragments of the monoclinic amphiboles show inclined extinction under crossed polars with no compensator. Asbestos fibers usually show extinction at zero degrees or ambiguous extinction if any at all. Morphologically, the larger cleavage fragments are obvious by their blunt or stepped ends showing prismatic habit. Also, they tend to be acicular rather than filiform.

Where the particles are less than 1 μm in diameter and have an aspect ratio greater than or equal to 3:1, it is recommended that the sample be analyzed by SEM or TEM if there is any question whether the fibers are cleavage fragments or asbestiform particles.

Care must be taken when analyzing by electron microscopy because the interferences are different from those in light microscopy and may structurally be very similar to asbestos. The classic interference is between anthophyllite and biopyribole or intermediate fiber. Use the same morphological clues for electron microscopy as are used for light microscopy, e.g. fibril splitting, internal longitudinal striation, fraying, curvature, etc.

(1) Gross examination:

Examine the sample, preferably in the glass vial. Determine the presence of any obvious fibrous component. Estimate a percentage based on previous experience and current observation. Determine whether any pre-preparation is necessary. Determine the number of phases present. This step may be carried out or augmented by observation at 6 to 40× under a stereo microscope.

(2) After performing any necessary pre-preparation, prepare slides of each phase as described above. Two preparations of the same phase in the same index medium can be made side-by-side on the same glass for convenience. Examine with the polarizing stereo microscope. Estimate the percentage of asbestos based on the amount of birefringent fiber present.

(3) Examine the slides on the phase-polar microscopes at magnifications of 160 and 400×. Note the morphology of the fibers. Long, thin, very straight fibers with little curvature are indicative of fibers from the amphibole family. Curved, wavy fibers are usually indicative of chrysotile. Estimate the percentage of asbestos on the phase-polar microscope under conditions of crossed polars and a gypsum plate. Fibers smaller than 1.0 μm in thickness must be identified by inference to the presence of larger, identifiable fibers and morphology. If no larger fibers are visible, electron microscopy should be performed. At this point, only a tentative identification can be made. Full identification must be made with dispersion microscopy. Details of the tests are included in the appendices.

(4) Once fibers have been determined to be present, they must be identified. Adjust the microscope for dispersion mode and observe the fibers. The microscope has a rotating stage, one polarizing element, and a system for generating dark-field dispersion microscopy (see Section 4.6. of this appendix). Align a fiber with its length parallel to the polarizer and note the color of the Becke lines. Rotate the stage to bring the fiber length perpendicular to the polarizer and note the color. Repeat this process for every fiber or fiber bundle examined. The colors must be consistent with the colors generated by standard asbestos reference materials for a positive identification. In n=1.550, amphiboles will generally show a yellow to straw-yellow color indicating that the fiber indices of refraction are higher than the liquid. If long, thin fibers are noted and the colors are yellow, prepare further slides as above in the suggested matching liquids listed below:

Type of asbestos	Index of refraction
Chrysotile	n=1.550.
Amosite	n=1.670 r 1.680.
Crocidolite	n=1.690.
Anthophyllite	n=1.605 nd 1.620.
Tremolite	n=1.605 and 1.620.
Actinolite	n=1.620.

Where more than one liquid is suggested, the first is preferred; however, in some cases this liquid will not give good dispersion color. Take care to avoid interferences in the other liquid; e.g., wollastonite in n=1.620 will give the same colors as tremolite. In n=1.605 wollastonite will appear yellow in all directions. Wollastonite may be determined under crossed polars as it will change from blue to yellow as it is rotated along its fiber axis by tapping on the cover slip. Asbestos minerals will not change in this way.

Determination of the angle of extinction may, when present, aid in the determination of anthophyllite from tremolite. True asbestos fibers usually have 0° extinction or ambiguous extinction, while cleavage fragments have more definite extinction.

Continue analysis until both preparations have been examined and all present species of asbestos are identified. If there are no fibers present, or there is less than 0.1% present, end the analysis with the minimum number of slides (2).

(5) Some fibers have a coating on them which makes dispersion microscopy very difficult or impossible. Becke line analysis or electron microscopy may be performed in those cases. Determine the percentage by light microscopy. TEM analysis tends to overestimate the actual percentage present.

(6) Percentage determination is an estimate of occluded area, tempered by gross observation. Gross observation information is used to make sure that the high magnification microscopy does not greatly over- or under-estimate the amount of fiber present. This part of the analysis requires a great deal of experience. Satisfactory models for asbestos content analysis have not yet been developed, although some models based on metallurgical grain-size determination have found some utility. Estimation is more easily handled in situations where the grain sizes visible at about 160× are about the same and the sample is relatively homogeneous.

View all of the area under the cover slip to make the percentage determination. View the fields while moving the stage, paying attention to the clumps of material. These are not usually the best areas to perform dispersion microscopy because of the interference from other materials. But, they are the areas most likely to represent the accurate percentage in the sample. Small amounts of asbestos require slower scanning and more frequent analysis of individual fields.

Report the area occluded by asbestos as the concentration. This estimate does not generally take into consideration the difference in density of the different species present in the sample. For most samples this is adequate. Simulation studies with similar materials must be carried out to apply microvisual estimation for that purpose and is beyond the scope of this procedure.

(7) Where successive concentrations have been made by chemical or physical means, the amount reported is the percentage of the material in the "as submitted" or original state. The percentage determined by microscopy is multiplied by the fractions remaining after pre-preparation steps to give the percentage in the original sample. For example:

Step 1. 60% remains after heating at 550 °C for 1 h. Step 2. 30% of the residue of step 1 remains after dissolution of carbonate in 0.1 m HCl.

Step 3. Microvisual estimation determines that 5% of the sample is chrysotile asbestos.

The reported result is:

R=(Microvisual result in percent)×(Fraction remaining after step 2)×(Fraction remaining of original sample after step 1)

R=(5)×(.30)×(.60)=0.9%

(8) Report the percent and type of asbestos present. For samples where asbestos was identified, but is less than 1.0%, report "Asbestos present, less than 1.0%." There must have been at least two observed fibers

or fiber bundles in the two preparations to be reported as present. For samples where asbestos was not seen, report as "None Detected."

Auxiliary Information

Because of the subjective nature of asbestos analysis, certain concepts and procedures need to be discussed in more depth. This information will help the analyst understand why some of the procedures are carried out the way they are.

4.1. Light

Light is electromagnetic energy. It travels from its source in packets called quanta. It is instructive to consider light as a plane wave. The light has a direction of travel. Perpendicular to this and mutually perpendicular to each other, are two vector components. One is the magnetic vector and the other is the electric vector. We shall only be concerned with the electric vector. In this description, the interaction of the vector and the mineral will describe all the observable phenomena. From a light source such a microscope illuminator, light travels in all different direction from the filament.

In any given direction away from the filament, the electric vector is perpendicular to the direction of travel of a light ray. While perpendicular, its orientation is random about the travel axis. If the electric vectors from all the light rays were lined up by passing the light through a filter that would only let light rays with electric vectors oriented in one direction pass, the light would then be *POLARIZED*.

Polarized light interacts with matter in the direction of the electric vector. This is the polarization direction. Using this property it is possible to use polarized light to probe different materials and identify them by how they interact with light.

The speed of light in a vacuum is a constant at about 2.99×10^8 m/s. When light travels in different materials such as air, water, minerals or oil, it does not travel at this speed. It travels slower. This slowing is a function of both the material through which the light is traveling and the wavelength or frequency of the light. In general, the more dense the material, the slower the light travels. Also, generally, the higher the frequency, the slower the light will travel. The ratio of the speed of light in a vacuum to that in a material is called the index of refraction (n). It is usually measured at 589 nm (the sodium D line). If white light (light containing all the visible wavelengths) travels through a material, rays of longer wavelengths will travel faster than those of shorter wavelengths, this separation is called dispersion. Dispersion is used as an identifier of materials as described in Section 4.6.

4.2. Material Properties

Materials are either amorphous or crystalline. The difference between these two descriptions depends on the positions of the atoms in them. The atoms in amorphous materials are randomly arranged with no long range order. An example of an amorphous material is glass. The atoms in crystalline materials, on the other hand, are in regular arrays and have long range order. Most of the atoms can be found in highly predictable locations. Examples of crystalline material are salt, gold, and the asbestos minerals.

It is beyond the scope of this method to describe the different types of crystalline materials that can be found, or the full description of the classes into which they can fall. However, some general crystallography is provided below to give a foundation to the procedures described.

With the exception of anthophyllite, all the asbestos minerals belong to the monoclinic crystal type. The unit cell is the basic repeating unit of the crystal and for monoclinic crystals can be described as having three unequal sides, two 90° angles and one angle not equal to 90°. The orthorhombic group, of which anthophyllite is a member has three unequal sides and three 90° angles. The unequal sides are a consequence of the complexity of fitting the different atoms into the unit cell. Although the atoms are in a regular array, that array is not symmetrical in all directions. There is long range order in the three major directions of the crystal. However, the order is different in each of the three directions. This has the effect that the index of refraction is different in each of the three directions. Using polarized light, we can investigate the index of refraction in each of the directions and identify the mineral or material under investigation. The indices α, β, and γ are used to identify the lowest, middle, and highest index of refraction respectively. The x direction, associated with α is called the fast axis. Conversely, the z direction is associated with γ and is the slow direction. Crocidolite has α along the fiber length making it "length-fast". The remainder of the asbestos minerals have the γ axis along the fiber length. They are called "length-slow". This orientation to fiber length is used to aid in the identification of asbestos.

4.3. Polarized Light Technique

Polarized light microscopy as described in this section uses the phase-polar microscope described in Section 3.2. A phase contrast microscope is fitted with two polarizing elements, one below and one above the sample. The polarizers have their polarization directions at right angles to each other. Depending on the tests performed, there may be a compensator between these two polarizing elements. A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train. Light emerging from a polarizing element has its electric vector pointing in the polarization direction of the element. The light will not be subsequently transmitted through a second element set at a right angle to the first element. Unless the light is altered as it passes from one element to the other, there is no transmission of light.

4.4. Angle of Extinction

Crystals which have different crystal regularity in two or three main directions are said to be anisotropic. They have a different index of refraction in each of the main directions. When such a crystal is inserted between the crossed polars, the field of view is no longer dark but shows the crystal in color. The color depends on the properties of the crystal. The light acts as if it travels through the crystal along the optical axes. If a crystal optical axis were lined up along one of the polarizing directions (either the polarizer or the analyzer) the light would appear to travel only in that direction, and it would blink out or go dark. The difference in degrees between the fiber direction and the angle at which it blinks out is called the angle of extinction. When this angle can be measured, it is useful in identifying the mineral. The procedure for measuring the angle of extinction is to first identify the polarization direction in the microscope. A commercial alignment slide can be used to establish the polarization directions or use anthophyllite or another suitable mineral. This mineral has a zero degree angle of extinction and will go dark to extinction as it aligns with the polarization directions. When a fiber of anthophyllite has gone to extinction, align the eyepiece reticle or graticule with the fiber so that there is a visual cue as to the direction of polarization in the field of view. Tape or otherwise secure the eyepiece in this position so it will not shift.

After the polarization direction has been identified in the field of view, move the particle of interest to the center of the field of view and align it with the polarization direction. For fibers, align the fiber along this direction. Note the angular reading of the rotating stage. Looking at the particle, rotate the stage until the fiber goes dark or "blinks out". Again note the reading of the stage. The difference in the first reading and the second is an angle of extinction.

The angle measured may vary as the orientation of the fiber changes about its long axis. Tables of mineralogical data usually report the maximum angle of extinction. Asbestos forming minerals, when they exhibit an angle of extinction, usually do show an angle of extinction close to the reported maximum, or as appropriate depending on the substitution chemistry.

4.5. Crossed Polars with Compensator

When the optical axes of a crystal are not lined up along one of the polarizing directions (either the polarizer or the analyzer) part of the light travels along one axis and part travels along the other visible axis. This is characteristic of birefringent materials.

The color depends on the difference of the two visible indices of refraction and the thickness of the crystal. The maximum difference available is the difference between the α and the γ axes. This maximum difference is usually tabulated as the birefringence of the crystal.

For this test, align the fiber at 45° to the polarization directions in order to maximize the contribution to each of the optical axes. The colors seen are called retardation colors. They arise from the recombination of light which has traveled through the two separate directions of the crystal. One of the rays is retarded behind the other since the light in that direction travels slower. On recombination, some of the colors which make up white light are enhanced by constructive interference and some are suppressed by destructive interference. The result is a color dependent on the difference between the indices and the thickness of the crystal. The proper colors, thicknesses, and

retardations are shown on a Michel-Levy chart. The three items, retardation, thickness and birefringence are related by the following relationship:

$R=t(n_\gamma-n_\alpha)$

R=retardation, t=crystal thickness in μm, and $n_{\alpha,\gamma}$=indices of refraction.

Examination of the equation for asbestos minerals reveals that the visible colors for almost all common asbestos minerals and fiber sizes are shades of gray and black. The eye is relatively poor at discriminating different shades of gray. It is very good at discriminating different colors. In order to compensate for the low retardation, a compensator is added to the light train between the polarization elements. The compensator used for this test is a gypsum plate of known thickness and birefringence. Such a compensator when oriented at 45° to the polarizer direction, provides a retardation of 530 nm of the 530 nm wavelength color. This enhances the red color and gives the background a characteristic red to red-magenta color. If this "full-wave" compensator is in place when the asbestos preparation is inserted into the light train, the colors seen on the fibers are quite different. Gypsum, like asbestos has a fast axis and a slow axis. When a fiber is aligned with its fast axis in the same direction as the fast axis of the gypsum plate, the ray vibrating in the slow direction is retarded by both the asbestos and the gypsum. This results in a higher retardation than would be present for either of the two minerals. The color seen is a second order blue. When the fiber is rotated 90° using the rotating stage, the slow direction of the fiber is now aligned with the fast direction of the gypsum and the fast direction of the fiber is aligned with the slow direction of the gypsum. Thus, one ray vibrates faster in the fast direction of the gypsum, and slower in the slow direction of the fiber; the other ray will vibrate slower in the slow direction of the gypsum and faster in the fast direction of the fiber. In this case, the effect is subtractive and the color seen is a first order yellow. As long as the fiber thickness does not add appreciably to the color, the same basic colors will be seen for all asbestos types except crocidolite. In crocidolite the colors will be weaker, may be in the opposite directions, and will be altered by the blue absorption color natural to crocidolite. Hundreds of other materials will give the same colors as asbestos, and therefore, this test is not definitive for asbestos. The test is useful in discriminating against fiberglass or other amorphous fibers such as some synthetic fibers. Certain synthetic fibers will show retardation colors different than asbestos; however, there are some forms of polyethylene and aramid which will show morphology and retardation colors similar to asbestos minerals. This test must be supplemented with a positive identification test when birefringent fibers are present which can not be excluded by morphology. This test is relatively ineffective for use on fibers less than 1 μm in diameter. For positive confirmation TEM or SEM should be used if no larger bundles or fibers are visible.

4.6. Dispersion Staining

Dispersion microscopy or dispersion staining is the method of choice for the identification of asbestos in bulk materials. Becke line analysis is used by some laboratories and yields the same results as does dispersion staining for asbestos and can be used in lieu of dispersion staining. Dispersion staining is performed on the same platform as the phase-polar analysis with the analyzer and compensator removed. One polarizing element remains to define the direction of the light so that the different indices of refraction of the fibers may be separately determined. Dispersion microscopy is a dark-field technique when used for asbestos. Particles are imaged with scattered light. Light which is unscattered is blocked from reaching the eye either by the back field image mask in a McCrone objective or a back field image mask in the phase condenser. The most convenient method is to use the rotating phase condenser to move an oversized phase ring into place. The ideal size for this ring is for the central disk to be just larger than the objective entry aperture as viewed in the back focal plane. The larger the disk, the less scattered light reaches the eye. This will have the effect of diminishing the intensity of dispersion color and will shift the actual color seen. The colors seen vary even on microscopes from the same manufacturer. This is due to the different bands of wavelength exclusion by different mask sizes. The mask may either reside in the condenser or in the objective back focal plane. It is imperative that the analyst determine by experimentation with asbestos standards what the appropriate colors should be for each asbestos type. The colors depend also on the temperature of the preparation and the exact chemistry of the asbestos. Therefore, some slight differences from the standards should be allowed. This is not a serious problem for commercial asbestos uses. This technique is used for identification of the indices of refraction for fibers by recognition of color. There is no direct numerical readout of the index of refraction. Correlation of color to actual index of refraction is possible by referral to published conversion tables. This is not necessary for the analysis of asbestos. Recognition of appropriate colors along with the proper morphology are deemed sufficient to identify the commercial asbestos minerals. Other techniques including SEM, TEM, and XRD may be required to provide additional information in order to identify other types of asbestos.

Make a preparation in the suspected matching high dispersion oil, e.g., n=1.550 for chrysotile. Perform the preliminary tests to determine whether the fibers are birefringent or not. Take note of the morphological character. Wavy fibers are indicative of chrysotile while long, straight, thin, frayed fibers are indicative of amphibole asbestos. This can aid in the selection of the appropriate matching oil. The microscope is set up and the polarization direction is noted as in Section 4.4. Align a fiber with the polarization direction. Note the color. This is the color parallel to the polarizer. Then rotate the fiber rotating the stage 90° so that the polarization direction is across the fiber. This is the perpendicular position. Again note the color. Both colors must be consistent with standard asbestos minerals in the correct direction for a positive identification of asbestos. If only one of the colors is correct while the other is not, the identification is not positive. If the colors in both directions are bluish-white, the analyst has chosen a matching index oil which is higher than the correct matching oil, e.g. the analyst has used n=1.620 where chrysotile is present. The next lower oil (Section 3.5.) should be used to prepare another specimen. If the color in both directions is yellow-white to straw-yellow-white, this indicates that the index of the oil is lower than the index of the fiber, e.g. the preparation is in n=1.550 while anthophyllite is present. Select the next higher oil (Section 3.5.) and prepare another slide. Continue in this fashion until a positive identification of all asbestos species present has been made or all possible asbestos species have been ruled out by negative results in this test. Certain plant fibers can have similar dispersion colors as asbestos. Take care to note and evaluate the morphology of the fibers or remove the plant fibers in pre- preparation. Coating material on the fibers such as carbonate or vinyl may destroy the dispersion color. Usually, there will be some outcropping of fiber which will show the colors sufficient for identification. When this is not the case, treat the sample as described in Section 3.3. and then perform dispersion staining. Some samples will yield to Becke line analysis if they are coated or electron microscopy can be used for identification.

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Shipyards

PART 1915—[AMENDED]

1. The authority citation of 29 CFR part 1915 continues to read as follows:

Authority: Sec. 41, Longshore and Harbor Workers Compensation Act (33 U.S.C. 941); secs. 4, 6, 8, Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); sec. 4 of the Administrative Procedure Act (5 U.S.C. 553); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 35736) or 1–90 (55 FR 9033), as applicable; 29 CFR part 1911.

2. Section 1915.1001 is revised to read as follows:

§ 1915.1001 Asbestos.

(a) *Scope and application.* This section regulates asbestos exposure in all shipyard employment work as defined in 29 CFR 1915, including but not limited to the following:

(1) Demolition or salvage of structures, vessels, and vessel sections where asbestos is present;

(2) Removal or encapsulation of materials containing asbestos;

(3) Construction, alteration, repair, maintenance, or renovation of vessels, vessel sections, structures, substrates, or portions thereof, that contain asbestos;

(4) Installation of products containing asbestos;

(5) Asbestos spill/emergency cleanup; and

(6) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.

(7) Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.

(b) Definitions.

Aggressive method means removal or disturbance of building/vessel materials by sanding, abrading, grinding, or other method that breaks, crumbles, or otherwise disintegrates intact ACM.

Amended water means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

Asbestos-containing material, (ACM) means any material containing more than one percent asbestos.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas.

Building/facility owner is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

Certified Industrial Hygienist (CIH) means one certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I asbestos work means activities involving the removal of thermal system insulation or surfacing ACM/PACM.

Class II asbestos work means activities involving the removal of ACM which is neither TSI or surfacing ACM. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, may be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

Clean room means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

Closely resemble means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

Competent person see "Qualified person"

Critical barrier means one or more layers of plastic sealed over all openings into a work area or any other physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Decontamination area means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Disturbance means contact which releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag, in order to access a building or vessel component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Employee exposure means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Equipment room (change room) means a contaminated room located within the decontamination area that is supplied with impermeable bags or

containers for the disposal of contaminated protective clothing and equipment.

Fiber means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

Glovebag means an impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

Homogeneous area means an area of surfacing material or thermal system insulation that is uniform in color and texture.

Industrial hygienist means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

Intact means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.

Modification for purposes of paragraph (g)(6)(2), means a changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of paragraph (g)(6)(ii) of this section.

Negative Initial Exposure Assessment means a demonstration by the employer, which complies with the criteria in paragraph (f)(iii) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

PACM means "presumed asbestos containing material".

Presumed Asbestos Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(4) of this section.

Project Designer means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. § 763.90(g).

Qualified person means, in addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for Class I, II, III, and IV work, who is specially trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR Part 763) for project designer or supervisor, or its equivalent.

Regulated area means an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or can reasonably be expected to exceed the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e)(6) of this section.

Removal means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

Renovation means the modifying of any existing vessel, vessel section, structure, or portion thereof.

Repair means overhauling, rebuilding, reconstructing, or reconditioning of vessels, vessel sections, structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

Surfacing material means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Surfacing ACM means surfacing material which contains more than 1% asbestos.

Thermal system insulation (TSI) means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Thermal system insulation ACM is thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limits (PELS)—(1) Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of this section, or by an equivalent method.

(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A of this section, or by an equivalent method.

(d) Multi-employer worksites. (1) On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(2) Asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.

(3) In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to paragraph (f)(1) of this section.

(4) All employers of employees working adjacent to regulated areas established by another employer on a multi-employer work- site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(5) All general contractors on a shipyard project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not qualified to serve as the asbestos "qualified person" as defined by paragraph (b) of this section. As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.

(e) Regulated areas (1) All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard

shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of paragraphs (e) (2), (3), (4) and (5) of this section.

(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne concentrations of asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(6) of this section.

(3) Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

(4) Respirators. All persons entering a regulated area where employees are required pursuant to paragraph (h)(2) of this section to wear respirators shall be supplied with a respirator selected in accordance with paragraph (h)(2) of this section.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(6) Qualified Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a qualified person, as defined in paragraph (b) of this section. The duties of the qualified person are set out in paragraph (o) of this section.

(f) Exposure assessments and monitoring—(1) *General monitoring criteria.* (i) Each employer who has a workplace of work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

(ii) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(iii) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(2) *Initial Exposure Assessment.* (i) Each employer who has a workplace or work operation covered by this standard shall ensure that a "qualified person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

(ii) Basis of Initial Exposure Assessment: The initial exposure assessment shall be based on data derived from the following sources:

(A) If feasible, the employer shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted pursuant to the criteria in paragraph (f)(2)(iii) of this section.

(B) In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "negative exposure assessment" conducted pursuant to paragraph (f)(2)(iii) of this section.

(C) For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(iii) Negative Initial Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria;

(A) Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

(B) Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

(C) The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(3) *Periodic monitoring.* (i) Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to paragraph (f)(2)(iii) of this section, has made a negative exposure assessment for the entire operation.

(ii) All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(iii) Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the positive-pressure mode, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method which is not listed in paragraph (g)(4) (i), (ii), or (iii) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(4)(i) Termination of monitoring. If the periodic monitoring required by

paragraph (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurement, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(ii) Additional monitoring. Notwithstanding the provisions of paragraph (f) (2) and (3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under paragraph (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(5) Observation of monitoring. (i) The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(ii) When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g) Methods of compliance—(1) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

(i) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM or PACM; and,

(ii) Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, slipping hazards; and

(iii) Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers

(2) In addition to the requirements of paragraph (g)(1) of this section above, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by paragraph (c) of this section;

(i) Local exhaust ventilation equipped with HEPA filter dust collection systems;

(ii) Enclosure or isolation of processes producing asbestos dust;

(iii) Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

(iv) Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

(v) Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (h) of this section.

(3) Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(i) High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

(ii) Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

(iii) Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

(iv) Employee rotation as a means of reducing employee exposure to asbestos.

(4) Class I Requirements. In addition to the provisions of paragraphs (g) (1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

(i) All Class I work, including the installation and operation of the control system shall be supervised by a qualified person as defined in paragraph (b) of this section;

(ii) For all Class I jobs involving the removal of more than 25 linear or 10 square feet of TSI or surfacing ACM or PACM; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(A) Critical barriers shall be placed over all openings to the regulated area: or

(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring.

(iii) For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(iv) For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(v) For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

(vi) For all Class I jobs where the employer cannot produce a negative exposure assessment or where exposure monitoring shows the PELs are exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(5) Specific Control Systems for Class I Work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(i) Negative Pressure Enclosure (NPE) systems: NPE systems shall be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

(A) Specifications:

(1) The negative pressure enclosure (NPE) may be of any configuration,

(2) At least 4 air changes per hour shall be maintained in the NPE,

(3) A minimum of −0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,

(4) The NPE shall be kept under negative pressure throughout the period of its use, and

(5) Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(B) Work Practices:

(1) Before beginning work within the enclosure and at the beginning of each shift, the NPE shall inspected for breaches and smoke-tested for leaks, and any leaks sealed.

(2) Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(ii) Glove bag systems, shall be used to remove PACM and/or ACM from straight runs of piping with the following specifications and work practices.

(A) Specifications:

(1) Glovebags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

(2) [Reserved]

(B) Work Practices:

(1) Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

(2) Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

(3) Glovebags may be used only once and may not be moved.

(4) Glovebags shall not be used on surfaces whose temperature exceeds 150°.

(5) Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

(6) Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact.

(7) Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity:

(8) Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

(9) At least two persons shall perform Class I glovebag removals.

(iii) Negative Pressure Glove Bag Systems. Negative pressure glove bag systems shall be used to remove ACM or PACM from piping.

(A) Specifications: In addition to specifications for glove bags systems above, negative pressure glove bag systems shall attach HEPA vacuum system or other device to bag to prevent collapse during removal.

(B) Work Practices:

(1) The employer shall comply with the work practices for glove bag systems in paragraph (g)(5)(ii)(B)(2) of this section,

(2) The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation.

(3) Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

(iv) Negative Pressure Glove Box systems: Negative pressure glove boxes shall be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

(A) Specifications:

(1) Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

(2) A negative pressure generator shall be used to create negative pressure in system:

(3) An air filtration unit shall be attached to the box:

(4) The box shall be fitted with gloved apertures:

(5) An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

(6) A back-up generator shall be present on site:

(7) Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

(B) Work practices:

(1) At least two persons shall perform the removal:

(2) The box shall be smoke tested prior to each use:

(3) Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

(4) A HEPA filtration system shall be used to maintain pressure barrier in box.

(v) Water Spray Process System: A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

(A) Specifications:

(1) Piping from which insulation will be removed shall be surrounded on 3 sides by rigid framing,

(2) A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

(3) The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

(B) Work Practices:

(1) The system shall be run for at least 10 minutes before removal begins.

(2) All removal shall take place within the barrier.

(3) The system shall be operated by at least three persons, one of whom shall not perform removal but shall check equipment, and ensure proper operation of the system.

(4) After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(vi) A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure, with the following specifications and work practices.

(A) Specifications:

(1) The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

(2) The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

(C) Work practices:

(1) Before use, the minienclosure shall be inspected for leaks and smoke tested to detect breaches, and breaches sealed.

(2) Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

(3) During use air movement shall be directed away from the employee's breathing zone within the minienclosure.

(6) Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in paragraph (g)(5) of this section, or which modifies a control method referenced in paragraph (g)(5) of this section, if the following provisions are complied with:

(i) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(ii) A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that: the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools Rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(i)(B)(*2*) of this section.

(A) Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less , the evaluation required in paragraph (g)(6) of this section may be performed by a "qualified person", and may omit consideration of perimeter or clearance monitoring otherwise required.

(B) The evaluation of employee exposure required in paragraph (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

(iii) Before work which involves the removal of more than 25 linear or 10 square feet of TSI or surfacing ACM/PACM is begun using an alternative method which has been the subject of a paragraph (g)(6) required evaluation and certification, the employer shall send a copy of such evaluation and certification to the national office of OSHA, Office of Technical Supportm, Room N3653, 200 Constitution Avenue, NW, Washington, DC 20210.

(*7*) Work Practices and Engineering Controls for Class II work.

(i) All Class II work, shall be supervised by a qualified person as defined in paragraph (b) of this section.

(ii) For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to paragraph (f)(4)(iii) of this section, or where during the job changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area;

(A) Critical barriers shall be placed over all openings to the regulated area; or,

(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in paragraph (g)(4)(i)(B)(*2*) of this section.

(iii) Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(iv) All Class II asbestos work shall be performed using the work practices and requirements set out above in paragraph (g)(3) (i) through (v) of this section.

(*8*) Additional Controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(i) For removing vinyl and asphalt flooring/deck materials which contain ACM or for which in buildings constructed not later than 1980, the employer has not verified the absence of ACM pursuant to paragraph (g)(8)(i)(I): the employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to paragraph (k)(8) of this section:

(A) Flooring/deck materials or its backing shall not be sanded.

(B) Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

(C) Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

(D) All scraping of residual adhesive and/or backing shall be performed using wet methods.

(E) Dry sweeping is prohibited.

(F) Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(iv) of this section.

(G) Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

(H) When tiles are heated and can be removed intact, wetting may be omitted.

(I) Resilient flooring/deck material in buildings/vessels constructed no later than 1980, including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

(ii) For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

(A) Roofing material shall be removed in an intact state to the extent feasible.

(B) Wet methods shall be used where feasible.

(C) Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

(D) All loose dust left by the sawing operation must be HEPA vacuumed immediately.

(E) Unwrapped or unbagged roofing material shall be immediately lowered to the ground via covered, dust-tight chute, crane or hoist, or placed in an impermeable waste bag or wrapped in plastic sheeting and lowered to ground no later than the end of the work shift.

(F) Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

(G) Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

(iii) When removing cementitious asbestos-containing siding, shingles (CACS), or transite panels containing ACM, the employer shall ensure that the following work practices are followed:

(A) Cutting, abrading or breaking siding, shingles, or transite panels shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.

(B) Each panel or shingle shall be sprayed with amended water prior to removal.

(C) Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

(D) Nails shall be cut with flat, sharp instruments.

(iv) When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

(A) If a gasket is visibly deteriorated and unlikely to be removed intact,

removal shall be undertaken within a glovebag as described in paragraph (g)(5)(ii) of this section.

(B) The gasket shall be thoroughly wetted with amended water prior to its removal.

(C) The wet gasket shall be immediately placed in a disposal container.

(D) Any scraping to remove residue must be performed wet.

(v) When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in paragraph (g)(8)(iv) (A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

(A) The material shall be thoroughly wetted with amended water prior and during its removal.

(B) The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

(C) Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

(D) Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

(vi) Alternative Work Practices and Controls. Instead of the work practices and controls listed in paragraphs (g)(8)(i) through (v) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

(A) The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

(B) A qualified person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(9) Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(i) The work shall be performed using wet methods.

(ii) To the extent feasible, the work shall be performed using local exhaust ventilation.

(iii) Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths and shall isolate the operation using mini-enclosures or glove bag systems pursuant to paragraph (g)(5) of this section.

(iv) Where the employer does not demonstrate by a negative exposure assessment performed in compliance with paragraph (f)(4)(iii) of this section that the PELs will not be exceeded, or where monitoring results show exceedances of a PEL, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using mini-enclosure or glove bag systems pursuant to paragraph (g)(5) of this section.

(v) Employees performing Class III jobs which involve the disturbance of TSI or surfacing ACM or PACM or where the employer does not demonstrate by a "negative exposure assessment" in compliance with paragraph (e)(4)(iii) of this section that the PELs will not be exceeded or where monitoring results show exceedances of the PEL, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(10) Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(8) of this section. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

(i) Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(ii) Employers of employees cleaning up waste and debris in an area where friable TSI or surfacing ACM/PACM is accessible, shall assume that such waste and debris contain asbestos.

(11) Specific compliance methods for brake and clutch repair: (i) Engineering controls and work practices for brake and clutch repair and service. During automotive brake and clutch inspection, disassembly, repair and assembly operations, the employer shall institute engineering controls and work practices to reduce employee exposure to materials containing asbestos using a negative pressure enclosure/HEPA vacuum system method or low pressure/wet cleaning method, which meets the detailed requirements set out in Appendix L to this section. The employer may also comply using an equivalent method which follows written procedures which the employer demonstrates can achieve results equivalent to Method A. For facilities in which no more than 5 pair of brakes or 5 clutches are inspected, disassembled, repaired, or assembled per week, the method set for in paragraph [D] of Appendix L to this section may be used.

(ii) The employer may also comply by using an equivalent method which follows written procedures, which the employer demonstrates can achieve equivalent exposure reductions as do the two "preferred methods." Such demonstration must include monitoring data conducted under workplace conditions closely resembling the process, type of asbestos containing materials, control method, work practices and environmental conditions which the equivalent method will be used, or objective data, which document that under all reasonably foreseeable conditions of brake and clutch repair applications, the method results in exposures which are equivalent to the methods set out in Appendix L.

(h) *Respiratory protection* (1) *General.* The employer shall provide respirators, and ensure that they are used, where required by this section. Respirators shall be used in the following circumstances:

(i) During all Class I asbestos jobs.

(ii) During all Class II work where the ACM is not removed in a substantially intact state.

(iii) During all Class II and III work which is not performed using wet methods.

(iv) During all Class II and III asbestos jobs where the employer does not produce a "negative exposure assessment".

(v) During all Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

(vi) During all Class IV work performed within regulated areas where

employees performing other work are required to wear respirators.

(vii) During all work covered by this section where employees are exposed above the TWA or excursion limit.

(viii) In emergencies.

(2) Respirator selection. (i) Where respirators are used, the employer shall select and provide, at no cost to the employee, the appropriate respirator as specified in Table 1, and shall ensure that the employee uses the respirator provided.

(ii) The employer shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(iii) The employer shall provide a tight fitting powered, air-purifying respirator in lieu of any negative-pressure respirator specified in Table 1 whenever:

(A) An employee performing Class I, II or III work chooses to use this type of respirator; and

(B) This respirator will provide adequate protection to the employee.

TABLE 1.—RESPIRATORY PROTECTION FOR ASBESTOS FIBERS

Airborne concentration of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10) X PEL), or otherwise as required independent of exposure pursuant to (h)(2)(iv).	Half-mask air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 X PEL)	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 X PEL)	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 X PEL)	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 X PEL) or unknown concentration.	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

Note: a. Respirators assigned for high environmental concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.

b. A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

(iv) In addition to the above selection criterion, the employer shall provide a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters whenever the employee performs the following activities: Class II and III asbestos jobs where the employer does not produce a negative exposure assessment; and Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

(v) In addition to the above selection criteria, the employer shall provide a full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliar76y positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a negative exposure assessment has not been produced.

(3) Respirator program. (i) Where respiratory protection is used, the employer shall institute a respirator program in accordance with 29 CFR 1910.134(b), (d), (e), and (f).

(ii) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(iii) Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

(iv) No employee shall be assigned to tasks requiring the use of respirators if, based on his or her most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or of other employees will be impaired by the use of a respirator. Such employee shall be assigned to another job or given the opportunity to transfer to a different position the duties of which he or she is able to perform with the same employer, in the same geographical area, and with the same seniority, status, and rate of pay and other job benefits he or she had just prior to such transfer, if such a different position is available.

(4) Respirator fit testing. (i) The employer shall ensure that the respirator issued to the employee exhibits the least possible facepiece leakage and that the respirator is fitted properly.

(ii) Employers shall perform either quantitative or qualitative face fit tests at the time of initial fitting and at least every 6 months thereafter for each employee wearing a negative-pressure respirator. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn, or of full-facepiece air purifying respirators where they are worn at levels at which half-facepiece air purifying respirators are permitted. Qualitative and quantitative fit tests shall be conducted in accordance with Appendix C of this section. The tests shall be used to select facepieces that provide the required protection as prescribed in Table 1, in paragraph (h)(2)(iii) of this section.

(i) *Protective clothing* (1) *General.* The employer shall provide and require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed in paragraph (c) of this section, or for which a required negative exposure assessment is not produced, and for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of TSI or surfacing ACM or PACM.

(2) *Laundering.* (i) The employer shall ensure that laundering of contaminated clothing is done so as to prevent the release of airborne asbestos in excess of the TWA or excursion limit prescribed in paragraph (c) of this section.

(ii) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in paragraph (i)(2)(i) of this section to effectively prevent the release of airborne asbestos in excess of the TWA excursion limit prescribed in paragraph (c) of this section.

(3) *Contaminated clothing.* Contaminated clothing shall be transported in sealed impermeable bags,

or other closed, impermeable containers, and be labeled in accordance with paragraph (k) of this section.

(4) *Inspection of protective clothing.* (i) The qualified person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(ii) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

(j) *Hygiene facilities and practices for employees.* (1) Requirements for employees performing Class I asbestos jobs.

(i) Decontamination areas: For all Class I jobs involving over 25 linear or 10 square feet of TSI or surfacing ACM or PACM, the employer shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

(A) Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

(B) Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3), unless the employer can demonstrate that they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless the employer can demonstrate that this location is not feasible. Where the employer can demonstrate that it is not feasible to locate the shower between the equipment room and the clean room, or where the work is performed outdoors, or when the work involving asbestos exposure takes place on board a ship, the employers shall ensure that employees:

(*1*) Remove asbestos contamination from their worksuits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or

(*2*) Remove their contaminated worksuits in the equipment room, then don clean worksuits, and proceed to a shower that is not adjacent to the work area.

(C) Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. When the employer can demonstrate that it is not feasible to provide a clean change area adjacent to the work area, or where the work is performed outdoors, or when the work takes place aboard a ship, the employer may permit employees engaged in Class I asbestos jobs to clean their protective clothing with a portable HEPA-equipped vacuum before such employees leave the regulated area. Such employees however must then change into street clothing in clean change areas provided by the employer which otherwise meet the requirements of this section.

(ii) Decontamination area entry procedures. The employer shall ensure that employees:

(A) Enter the decontamination area through the clean room;

(B) Remove and deposit street clothing within a locker provided for their use; and

(C) Put on protective clothing and respiratory protection before leaving the clean room.

(D) Before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

(iii) Decontamination area exit procedures. The employer shall ensure that:

(A) Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.

(B) Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.

(C) Employees shall not remove their respirators in the equipment room.

(D) Employees shall shower prior to entering the clean room.

(E) After showering, employees shall enter the clean room before changing into street clothes.

(iv) Lunch Areas. Whenever food or beverages are consumed at the worksite where employees are performing Class I asbestos work, the employer shall provide lunch areas in which the airborne concentrations of asbestos are below the permissible exposure limit and/or excursion limit.

(2) Requirements for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing and PACM, and for Class II and Class III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation.

(i) The employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor/deck or horizontal working surface.

(ii) The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area (as determined by visible accumulations).

(iii) Workclothing must be cleaned with a HEPA vacuum before it is removed.

(iv) All equipment and surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.

(v) The employer shall ensure that employees enter and exit the regulated area through the equipment room or area.

(3) Requirements for Class IV work. Employers shall ensure that employees performing Class IV work within a regulated area comply with the hygiene practice required of employees performing work which has a higher classification within that regulated area. Otherwise employers of employees cleaning up debris and material which is TSI or surfacing ACM or identified as PACM shall provide decontamination facilities for such employees which are required by paragraph (j)(2) of this section.

(4) Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(k) *Communication of hazards.*

Note: This section applies to the communication of information concerning asbestos hazards in shipyard employment activities to facilitate compliance with this standard. Most asbestos-related shipyard activities involve previously installed building materials. Building/vessel owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building/Vessel Material: Employers and building/vessel owners are required to treat TSI and sprayed or troweled on surfacing materials as asbestos-containing unless the employer, by complying with paragraph (k)(4) of this section determines that the material is not asbestos-containing. Asphalt or vinyl flooring/decking material installed in buildings or vessels no later than 1980 must also be considered as asbestos containing unless the employer/owner, pursuant to paragraph (g), of this section determines it is not asbestos containing. If the employer or building/vessel owner has actual knowledge or should have known, through the exercise of due diligence, that materials other than TSI and sprayed-on or troweled-on surfacing materials are asbestos-containing, they must be treated as such.

When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multi-employer worksites are set out in paragraph (d) of this standard.

(1) Duties of building/vessel and facility owners. (i) Before work subject to this standard is begun, building/vessel and facility owners shall identify the presence, location and quantity of ACM, and/or PACM at the work site. All thermal system insulation and sprayed on or troweled on surfacing materials in buildings/vessels or substrates constructed no later than 1980 shall be identified as PACM. In addition, resilient flooring/decking material installed no later than 1980 shall also be identified as asbestos-containing.

(ii) Building/vessel and/or facility owners shall notify the following persons of the presence, location and quantity of ACM or PACM, at work sites in their buildings/facilities/vessels. Notification either shall be in writing or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

(A) Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(B) Employees of the owner who will work in or adjacent to areas containing such material:

(C) On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(D) Tenants who will occupy areas containing such materials.

(2) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/vessel and facility owners whose employees perform such work shall comply with these provisions to the extent applicable.

(i) Before work in areas containing ACM and PACM is begun, employers shall identify the presence, location, and quantity of ACM, and/or PACM therein.

(ii) Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present at the work site and the precautions to be taken to insure that airborne asbestos is confined to the area.

(A) Owners of the building/vessel or facility;

(B) Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas;

(iii) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/vessel or facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the former regulated area and final monitoring results, if any.

(3) In addition to the above requirements, all employers who discover ACM and/or PACM on a work site shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(4) Criteria to rebut the designation of installed material as PACM. (i) At any time, an employer and/or building/vessel owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building/vessel owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (k)(4)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (n) of this section.

(ii) An employer or owner may demonstrate that PACM does not contain asbestos by the following:

(A) Having a completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM;

(B) Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests shall include analysis of 3 bulk samples of each homogeneous area of PACM collected in a randomly distributed manner. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) of the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA), or an equivalent nationally-recognized round robin testing program..

(5) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain TSI or surfacing ACM and PACM, the building/vessel owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed.

(6) Signs. (i) Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by paragraph (e) of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(ii) The warning signs required by (k)(6) of this section shall bear the following information.

DANGER

ASBESTOS

CANCER AND LUNG DISEASE HAZARD

AUTHORIZED PERSONNEL ONLY

RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN THIS AREA

(7) Labels. (i) Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers. Where feasible, installed asbestos products shall contain a visible label.

(ii) Labels shall be printed in large, bold letters on a contrasting background.

(iii) Labels shall be used in accordance with the requirements of 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard, and shall contain the following information:

DANGER

CONTAINS ASBESTOS FIBERS

AVOID CREATING DUST

CANCER AND LUNG DISEASE HAZARD

(iv) [Reserved]

(v) Labels shall contain a warning statement against breathing asbestos fibers.

(vi) The provisions for labels required by paragraphs (k)(2) (i) through (k)(2) (iii) of this section do not apply where:

(A) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that, during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne

concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released, or

(B) Asbestos is present in a product in concentrations less than 1.0 percent by weight.

(vii) When a building/vessel owner/or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical rooms/areas. Signs required by paragraph (k)(5) of this section may be posted in lieu of labels so long as they contain information required for labelling.

(8) Employee information and training. (i) The employer shall, at no cost to the employee,institute a training program for all employees who install asbestos containing products and for all employees who perform Class I through IV asbestos operations, and shall ensure their participation in the program.

(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(iii) Training for Class I and II operations shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Pt. 763, Subpt. E, App. C). For employers whose Class II work with asbestos-containing material involves only the removal and/or disturbance of one generic category of building/vessel material, such as roofing materials, flooring/deck materials, siding materials or transite panels, instead, such employer is required to train employees who perform such work by providing a training course which includes as a minimum all the elements included in paragraph (k)(8)(v) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) of this section which specifically relate to that material category. Such course shall include "hands-on" training and shall take at least 8 hours.

(iv) Training for Class III employees shall be the equivalent in curriculum and training method to the 16-hour Operations and Maintenance course developed by EPA for maintenance and custodial workers who conduct activities that will result in the disturbance of ACM. [See 40 CFR 763.92(a)(2)]. Such course shall include "hands-on" training in the use of respiratory protection and work practices and shall take at least 16 hours.

(v) Training for employees performing Class IV operations shall be the equivalent in curriculum and training method to the awareness training course developed by EPA for maintenance and custodial workers who work in buildings containing asbestos-containing material. (See 40 CFR 763.92 (a)(1)). Such course shall include available information concerning the locations of PACM and ACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(vi) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraph (k)(8)(iii) of this section, the employer shall ensure that each such employee is informed of the following:

(A) Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos.;

(B) The health effects associated with asbestos exposure;

(C) The relationship between smoking and asbestos in producing lung cancer;

(D) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; where Class II and IV work will be or is performed, the contents of EPA 20T–2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

(E) The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(F) The appropriate work practices for performing the asbestos job;

(G) Medical surveillance program requirements; and

(H) The content of this standard, including appendices.

(I) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J, to comply with this requirement.

(J) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(9) Access to training materials. (i) The employer shall make readily available to affected employees without cost written materials relating to the employee training program, including a copy of this regulation.

(ii) The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

(iii) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No, 89–1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J.

(1) Housekeeping—(1) Vacuuming. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers.

(3) Care of asbestos-containing flooring/deck material. (i) All vinyl and asphalt flooring/deck material shall be maintained in accordance with this paragraph unless the building/facility owner demonstrates, pursuant to paragraph (g) that the flooring/deck does not contain asbestos.

(i) Sanding of flooring/deck material is prohibited.

(ii) Stripping of finishes shall be conducted using low abrasion pads at speed lower than 300 rpm and wet methods.

(iii) Burnishing or dry buffing may be performed only on flooring/deck which has sufficient finish so that the pad cannot contact the flooring/deck material.

(4) Dust and debris in an area containing accessible thermal system insulation or surfacing material or visibly deteriorated ACM. (i) shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

(ii) shall be promptly cleaned up and disposed in leak tight containers.

(m) Medical surveillance—(1) General—(i) Employees covered. The employer shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II, and III work or are exposed at or above the permissible exposure limit or excursion limit, and for employees who wear negative pressure respirators pursuant to the requirements of this section.

(ii) Examination by a physician. (A) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.

(B) Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(2) Medical examinations and consultations—(i) Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (m)(1)(i) of this section on the following schedules:

(A) Prior to assignment of the employee to an area where negative-pressure respirators are worn;

(B) When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure for 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

(C) And at least annually thereafter.

(D) If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician.

(E) Exception: No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(ii) Content. Medical examinations made available pursuant to paragraphs (m)(2)(i) (A) through (m)(2)(i) (C) of this section shall include:

(A) A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.

(B) On initial examination, the standardized questionnaire contained in Part 1 of Appendix D to this section and, on annual examination, the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section.

(C) A physical examination directed to the pulmonary and gastrointestinal systems, including a chest ,x-ray to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV(1)). Interpretation and classification of chest roentgenogram shall be conducted in accordance with Appendix E to this section.

(D) Any other examinations or tests deemed necessary by the examining physician.

(3) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and Appendices D, E, G, and I to this section;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level or anticipated exposure level;

(iv) A description of any personal protective and respiratory equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(4) Physician's written opinion. (i) The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

(A) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

(B) Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and

(C) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

(D) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(ii) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(iii) The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

(n) Recordkeeping—(1) Objective data relied on pursuant to paragraph (f) of this section. (i) Where the employer has relied on objective data that demonstrate that products made from or containing asbestos are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling to satisfy the requirements of paragraph (f) of this section, the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(ii) The record shall include at least the following information:

(A) The product qualifying for exemption;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

(D) A description of the operation exempted and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(2) Exposure measurements. (i) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f) of this section. Note: The employer may utilize the services of qualified organizations such as industry trade associations and employee associations to maintain the records required by this section.

(ii) This record shall include at least the following information:

(A) The date of measurement;

(B) The operation involving exposure to asbestos that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of protective devices worn, if any; and

(F) Name, social security number, and exposure of the employees whose exposures are represented.

(iii) The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.20.

(3) Medical surveillance. (i) The employer shall establish and maintain

an accurate record for each employee subject to medical surveillance by paragraph (m) of this section, in accordance with 29 CFR 1910.20.

(ii) The record shall include at least the following information:

(A) The name and social security number of the employee;

(B) A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.

(C) Physician's written opinions;

(D) Any employee medical complaints related to exposure to asbestos; and

(E) A copy of the information provided to the physician as required by paragraph (m) of this section.

(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.20.

(4) Training records. The employer shall maintain all employee training records for one 1 year beyond the last date of employment by that employer.

(5) Data to Rebut PACM:

(i) Where the building owner and employer have relied on data to demonstrate that PACM is not asbestos-containing, such data shall be maintained for as long as they are relied upon to rebut the presumption.

(ii) [Reserved]

(6) Records of Required Notification.

(i) Where the building/vessel owner has communicated and received information concerning the identity, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities/vessels.

(ii) [Reserved]

(7) Availability. (i) The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

(ii) The employer, upon request, shall make any exposure records required by paragraphs (f) and (n) of this section available for examination and copying to affected employees, former employees, designated representatives, and the Assistant Secretary, in accordance with 29 CFR 1910.20(a) through (e) and (g) through (i).

(iii) The employer, upon request, shall make employee medical records required by paragraphs (m) and (n) of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.20.

(8) Transfer of records. (i) The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.20 (h).

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director.

(o) *Qualified person.* (1) *General.* On all shipyard worksites covered by this standard, the employer shall designate a qualified person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).

(2) *Required Inspections by the Qualified Person.* § 1926.20(b)(2) which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by qualified persons, is incorporated.

(3) *Additional Inspections.* In addition, the qualified person shall make frequent and regular inspections of the job sites, in order to perform the duties set out in paragraph (p)(3)(i) and (ii) of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II and III jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(i) On all worksites where employees are engaged in Class I or II asbestos work, the qualified person designated in accordance with paragraph (g)(1) of this section shall perform or supervise the following duties, as applicable:

(A) Set up the regulated area, enclosure, or other containment;

(B) Ensure (by on-site inspection) the integrity of the enclosure or containment;

(C) Set up procedures to control entry to and exit from the enclosure and/or area;

(D) Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by paragraph (f) of this section;

(E) Ensure that employees working within the enclosure and/or using glove bags wear protective clothing and respirators as required by paragraphs (h) and (i) of this section;

(F) Ensure through on-site supervision, that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

(G) Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in paragraph (j) of this section;

(H) Ensure that though on-site inspection engineering controls are functioning properly and employees are using proper work practices; and

(I) Ensure that notification requirements in paragraph (f)(6) of this section are met.

(4) Training for the competent person;

(i) For Class I and II asbestos work the qualified person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors, such as a course conducted by an EPA or state-approved training provider, certified by the EPA or a state, or an course equivalent in stringency, content, and length.

(ii) For Class III asbestos work operations, the qualified person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall be obtained in a comprehensive course for supervisors, such as a course conducted by an EPA or state-approved training provider, certified by the EPA or a state, or an equivalent in stringency, content, and length.

(p) *Appendices.* (1) Appendices A, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(2) Appendices B, F, H, I, J, and K to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(q) *Dates.*

(1) This standard shall become effective October 11, 1994.

(2) The provisions of 29 CFR 1926.58 and 29 CFR 1910.1001 remain in effect until the start-up dates of the equivalent provisions of this standard.

(3) Start-up dates: All obligations of this standard commence on the effective date except as follows:

(i) *Methods of compliance.* The engineering and work practice controls

required by paragraph (g) of this section shall be implemented as soon as possible but no later than April 10, 1995.

(ii) *Respiratory protection.* Respiratory protection required by paragraph (h) of this section shall be provided as soon as possible but no later than February 8, 1995.

(iii) *Hygiene facilities and practices for employees.* Hygiene facilities and practices required by paragraph (j) of this section shall be provided as soon as possible but no later than February 8, 1995.

(iv) *Communication of hazards.* Identification, notification, labeling and sign posting, and training required by paragraph (k) of this section shall be provided as soon as possible, but no later than April 10, 1995.

(v) *Housekeeping.* Housekeeping practices and controls required by paragraph (l) of this section shall be provided as soon as possible, but no later than January 9, 1995.

(vi) Medical surveillance required by paragraph (m) of this section shall be provided as soon as possible, but no later than January 9, 1995.

(vii) The designation and training of competent persons required by paragraph (o) of this section shall completed as soon as possible but no later than April 10, 1995.

(Approved by the Office of Management and Budget under control number 1218–0195)

Appendix A to § 1915.1001. OSHA Reference Method.—Mandatory

This mandatory appendix specifies the procedure for analyzing air samples for asbestos, tremolite, anthophyllite, and actinolite and specifies quality control procedures that must be implemented by laboratories performing the analysis. The sampling and analytical methods described below represent the elements of the available monitoring methods (such as appendix B to this section, the most current version of the OSHA method ID–60, or the most current version of the NIOSH 7400 method) which OSHA considers to be essential to achieve adequate employee exposure monitoring while allowing employers to use methods that are already established within their organizations. All employers who are required to conduct air monitoring under paragraph (f) of this section are required to utilize analytical laboratories that use this procedure, or an equivalent method, for collecting and analyzing samples.

Sampling and Analytical Procedure

1. The sampling medium for air samples shall be mixed cellulose ester filter membranes. These shall be designated by the manufacturer as suitable for asbestos, tremolite, anthophyllite, and actinolite counting. See below for rejection of blanks.

2. The preferred collection device shall be the 25-mm diameter cassette with an open-faced 50-mm extension cowl. The 37-mm cassette may be used if necessary but only if written justification for the need to use the 37-mm filter cassette accompanies the sample results in the employee's exposure monitoring record. Do not reuse or reload cassettes for asbestos sample collection.

3. An air flow rate between 0.5 liter/min and 2.5 liters/min shall be selected for the 25-mm cassette. If the 37-mm cassette is used, an air flow rate between 1 liter/min and 2.5 liters/min shall be selected.

4. Where possible, a sufficient air volume for each air sample shall be collected to yield between 100 and 1,300 fibers per square millimeter on the membrane filter. If a filter darkens in appearance or if loose dust is seen on the filter, a second sample shall be started.

5. Ship the samples in a rigid container with sufficient packing material to prevent dislodging the collected fibers. Packing material that has a high electrostatic charge on its surface (e.g., expanded polystyrene) cannot be used because such material can cause loss of fibers to the sides of the cassette.

6. Calibrate each personal sampling pump before and after use with a representative filter cassette installed between the pump and the calibration devices.

7. Personal samples shall be taken in the "breathing zone" of the employee (i.e., attached to or near the collar or lapel near the worker's face).

8. Fiber counts shall be made by positive phase contrast using a microscope with an 8 to 10 X eyepiece and a 40 to 45 X objective for a total magnification of approximately 400 X and a numerical aperture of 0.65 to 0.75. The microscope shall also be fitted with a green or blue filter.

9. The microscope shall be fitted with a Walton-Beckett eyepiece graticule calibrated for a field diameter of 100 micrometers (+/− 2 micrometers).

10. The phase-shift detection limit of the microscope shall be about 3 degrees measured using the HSE phase shift test slide as outlined below.

a. Place the test slide on the microscope stage and center it under the phase objective.

b. Bring the blocks of grooved lines into focus.

Note: The slide consists of seven sets of grooved lines (ca. 20 grooves to each block) in descending order of visibility from sets 1 to 7, seven being the least visible. The requirements for asbestos, tremolite, anthophyllite, and actinolite counting are that the microscope optics must resolve the grooved lines in set 3 completely, although they may appear somewhat faint, and that the grooved lines in sets 6 and 7 must be invisible. Sets 4 and 5 must be at least partially visible but may vary slightly in visibility between microscopes. A microscope that fails to meet these requirements has either too low or too high a resolution to be used for asbestos, tremolite, anthophyllite, and actinolite counting.

c. If the image deteriorates, clean and adjust the microscope optics. If the problem persists, consult the microscope manufacturer.

11. Each set of samples taken will include 10 percent blanks or a minimum of 2 blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. Any samples represented by a blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

12. The samples shall be mounted by the acetone/triacetin method or a method with an equivalent index of refraction and similar clarity.

13. Observe the following counting rules.

a. Count only fibers equal to or longer than 5 micrometers. Measure the length of curved fibers along the curve.

b. Count all particles as asbestos, tremolite, anthophyllite, and actinolite that have a length-to-width ratio (aspect ratio) of 3:1 or greater.

c. Fibers lying entirely within the boundary of the Walton-Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle, shall receive the count of one half (½). Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area.

d. Count bundles of fibers as one fiber unless individual fibers can be identified by observing both ends of an individual fiber.

e. Count enough graticule fields to yield 100 fibers. Count a minimum of 20 fields; stop counting at 100 fields regardless of fiber count.

14. Blind recounts shall be conducted at the rate of 10 percent.

Quality Control Procedures

1. Intra-laboratory program. Each laboratory and/or each company with more than one microscopist counting slides shall establish a statistically designed quality assurance program involving blind recounts and comparisons between microscopists to monitor the variability of counting by each microscopist and between microscopists. In a company with more than one laboratory, the program shall include all laboratories and shall also evaluate the laboratory-to-laboratory variability.

2. a. Interlaboratory program. Each laboratory analyzing asbestos, tremolite, anthophyllite, and actinolite samples for compliance determination shall implement an interlaboratory quality assurance program that as a minimum includes participation of at least two other independent laboratories. Each laboratory shall participate in round robin testing at least once every 6 months with at least all the other laboratories in its interlaboratory quality assurance group. Each laboratory shall submit slides typical of its own work load for use in this program. The round robin shall be designed and results analyzed using appropriate statistical methodology.

b. All laboratories should participate in a national sample testing scheme such as the Proficiency Analytical Testing Program (PAT), the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

3. All individuals performing asbestos, tremolite, anthophyllite, and actinolite

analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos, tremolite, anthophyllite, and actinolite dust or an equivalent course.

4. When the use of different microscopes contributes to differences between counters and laboratories, the effect of the different microscope shall be evaluated and the microscope shall be replaced, as necessary.

5. Current results of these quality assurance programs shall be posted in each laboratory to keep the microscopists informed.

Appendix B to § 1915.1001—Detailed Procedures for Asbestos Sampling and Analysis (Non-mandatory)

	Air
Matrix:	
OSHA Permissible Exposure Limits:	
Time Weighted Average	0.1 fiber/cc
Excursion Level (30 minutes)	1.0 fiber/cc
Collection Procedure:	
A known volume of air is drawn through a 25-mm diameter cassette containing a mixed-cellulose ester filter. The cassette must be equipped with an electrically conductive 50-mm extension cowl. The sampling time and rate are chosen to give a fiber density of between 100 to 1,300 fibers/mm² on the filter.	
Recommended Sampling Rate	0.5 to 5.0 liters/minute (L/min)
Recommended Air Volumes:	
Minimum	25 L
Maximum	2,400 L

Analytical Procedure: A portion of the sample filter is cleared and prepared for asbestos fiber counting by Phase Contrast Microscopy (PCM) at 400X.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL-OSHA. Similar products from other sources can be substituted.

1. Introduction

This method describes the collection of airborne asbestos fibers using calibrated sampling pumps with mixed-cellulose ester (MCE) filters and analysis by phase contrast microscopy (PCM). Some terms used are unique to this method and are defined below:

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, crocidolite, amosite (cummingtonite-grunerite asbestos), tremolite asbestos, actinolite asbestos, anthophyllite asbestos, and any of these minerals that have been chemically treated and/or altered. The precise chemical formulation of each species will vary with the location from which it was mined. Nominal compositions are listed:

Chrysotile	$Mg_3Si_2O_5(OH)_4$
Crocidolite	$Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)2$
Amosite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-actinolite.	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos which meets the criteria specified below for a fiber.

Aspect Ratio: The ratio of the length of a fiber to it's diameter (e.g. 3:1, 5:1 aspect ratios).

Cleavage Fragments: Mineral particles formed by comminution of minerals, especially those characterized by parallel sides and a moderate aspect ratio (usually less than 20:1).

Detection Limit: The number of fibers necessary to be 95% certain that the result is greater than zero.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from the fiber count because they do not appear to be asbestos.

Fiber: A particle that is 5 μm or longer, with a length-to-width ratio of 3 to 1 or longer.

Field: The area within the graticule circle that is superimposed on the microscope image.

Set: The samples which are taken, submitted to the laboratory, analyzed, and for which, interim or final result reports are generated.

Tremolite, Anthophyllite, and Actinolite: The non-asbestos form of these minerals which meet the definition of a fiber. It includes any of these minerals that have been chemically treated and/or altered.

Walton-Beckett Graticule: An eyepiece graticule specifically designed for asbestos fiber counting. It consists of a circle with a projected diameter of 100 ± 2 μm (area of about 0.00785 mm²) with a crosshair having tic-marks at 3-μm intervals in one direction and 5-μm in the orthogonal direction. There are marks around the periphery of the circle to demonstrate the proper sizes and shapes of fibers. This design is reproduced in Figure 2. The disk is placed in one of the microscope eyepieces so that the design is superimposed on the field of view.

1.1. History

Early surveys to determine asbestos exposures were conducted using impinger counts of total dust with the counts expressed as million particles per cubic foot. The British Asbestos Research Council recommended filter membrane counting in 1969. In July 1969, the Bureau of Occupational Safety and Health published a filter membrane method for counting asbestos fibers in the United States. This method was refined by NIOSH and published as P & CAM 239. On May 29, 1971, OSHA specified filter membrane sampling with phase contrast counting for evaluation of asbestos exposures at work sites in the United States. The use of this technique was again required by OSHA in 1986. Phase contrast microscopy has continued to be the method of choice for the measurement of occupational exposure to asbestos.

1.2. Principle

Air is drawn through a MCE filter to capture airborne asbestos fibers. A wedge shaped portion of the filter is removed, placed on a glass microscope slide and made transparent. A measured area (field) is viewed by PCM. All the fibers meeting a defined criteria for asbestos are counted and considered a measure of the airborne asbestos concentration.

1.3. Advantages and Disadvantages

There are four main advantages of PCM over other methods:

(1) The technique is specific for fibers. Phase contrast is a fiber counting technique which excludes non-fibrous particles from the analysis.

(2) The technique is inexpensive and does not require specialized knowledge to carry out the analysis for total fiber counts.

(3) The analysis is quick and can be performed on-site for rapid determination of air concentrations of asbestos fibers.

(4) The technique has continuity with historical epidemiological studies so that estimates of expected disease can be inferred from long-term determinations of asbestos exposures.

The main disadvantage of PCM is that it does not positively identify asbestos fibers. Other fibers which are not asbestos may be included in the count unless differential counting is performed. This requires a great deal of experience to adequately differentiate asbestos from non-asbestos fibers. Positive identification of asbestos must be performed by polarized light or electron microscopy techniques. A further disadvantage of PCM is that the smallest visible fibers are about 0.2 μm in diameter while the finest asbestos fibers may be as small as 0.02 μm in diameter. For some exposures, substantially more fibers may be present than are actually counted.

1.4. Workplace Exposure

Asbestos is used by the construction industry in such products as shingles, floor tiles, asbestos cement, roofing felts, insulation and acoustical products. Non-construction uses include brakes, clutch

facings, paper, paints, plastics, and fabrics. One of the most significant exposures in the workplace is the removal and encapsulation of asbestos in schools, public buildings, and homes. Many workers have the potential to be exposed to asbestos during these operations.

About 95% of the asbestos in commercial use in the United States is chrysotile. Crocidolite and amosite make up most of the remainder. Anthophyllite and tremolite or actinolite are likely to be encountered as contaminants in various industrial products.

1.5. Physical Properties

Asbestos fiber possesses a high tensile strength along its axis, is chemically inert, non-combustible, and heat resistant. It has a high electrical resistance and good sound absorbing properties. It can be weaved into cables, fabrics or other textiles, and also matted into asbestos papers, felts, or mats.

2. Range and Detection Limit

2.1. The ideal counting range on the filter is 100 to 1,300 fibers/mm^2. With a Walton-Beckett graticule this range is equivalent to 0.8 to 10 fibers/field. Using NIOSH counting statistics, a count of 0.8 fibers/field would give an approximate coefficient of variation (CV) of 0.13.

2.2. The detection limit for this method is 4.0 fibers per 100 fields or 5.5 fibers/mm^2. This was determined using an equation to estimate the maximum CV possible at a specific concentration (95% confidence) and a Lower Control Limit of zero. The CV value was then used to determine a corresponding concentration from historical CV vs fiber relationships. As an example:

Lower Control Limit (95% Confidence) = AC—1.645(CV)(AC)

Where:

AC = Estimate of the airborne fiber concentration (fibers/cc) Setting the Lower Control Limit = 0 and solving for CV:

0 = AC—1.645(CV)(AC)

CV = 0.61

This value was compared with CV vs. count curves. The count at which CV = 0.61 for Leidel-Busch counting statistics (8.9.) or for an OSHA Salt Lake Technical Center (OSHA-SLTC) CV curve (see Appendix A for further information) was 4.4 fibers or 3.9 fibers per 100 fields, respectively. Although a lower detection limit of 4 fibers per 100 fields is supported by the OSHA-SLTC data, both data sets support the 4.5 fibers per 100 fields value.

3. Method Performance—Precision and Accuracy

Precision is dependent upon the total number of fibers counted and the uniformity of the fiber distribution on the filter. A general rule is to count at least 20 and not more than 100 fields. The count is discontinued when 100 fibers are counted, provided that 20 fields have already been counted. Counting more than 100 fibers results in only a small gain in precision. As the total count drops below 10 fibers, an accelerated loss of precision is noted.

At this time, there is no known method to determine the absolute accuracy of the asbestos analysis. Results of samples prepared through the Proficiency Analytical Testing (PAT) Program and analyzed by the OSHA-SLTC showed no significant bias when compared to PAT reference values. The PAT samples were analyzed from 1987 to 1989 (N=36) and the concentration range was from 120 to 1,300 fibers/mm^2.

4. Interferences

Fibrous substances, if present, may interfere with asbestos analysis.

Some common fibers are:

Fiber glass	Perlite veins.
Anhydrite plant fibers gypsum.	Some synthetic fibers.
Membrane structures	Sponge spicules and diatoms.
Microorganisms	Wollastonite.

The use of electron microscopy or optical tests such as polarized light, and dispersion staining may be used to differentiate these materials from asbestos when necessary.

5. Sampling

5.1. Equipment

5.1.1. Sample assembly (The assembly is shown in Figure 3). Conductive filter holder consisting of a 25-mm diameter, 3-piece cassette having a 50-mm long electrically conductive extension cowl. Backup pad, 25-mm, cellulose. Membrane filter, mixed-cellulose ester (MCE), 25-mm, plain, white, 0.8- to 1.2-μm pore size.

Notes: (a) DO NOT RE-USE CASSETTES.

(b) Fully conductive cassettes are required to reduce fiber loss to the sides of the cassette due to electrostatic attraction.

(c) Purchase filters which have been selected by the manufacturer for asbestos counting or analyze representative filters for fiber background before use. Discard the filter lot if more than 4 fibers/100 fields are found.

(d) To decrease the possibility of contamination, the sampling system (filter-backup pad-cassette) for asbestos is usually preassembled by the manufacturer.

5.1.2. Gel bands for sealing cassettes.

5.1.3. Sampling pump.

Each pump must be a battery operated, self-contained unit small enough to be placed on the monitored employee and not interfere with the work being performed. The pump must be capable of sampling at 2.5 liters per minute (L/min) for the required sampling time.

5.1.4. Flexible tubing, 6-mm bore.

5.1.5. Pump calibration.

Stopwatch and bubble tube/burette or electronic meter.

5.2. Sampling Procedure

5.2.1. Seal the point where the base and cowl of each cassette meet (see Figure 3) with a gel band or tape.

5.2.2. Charge the pumps completely before beginning.

5.2.3. Connect each pump to a calibration cassette with an appropriate length of 6-mm bore plastic tubing. Do not use luer connectors—the type of cassette specified above has built-in adapters.

5.2.4. Select an appropriate flow rate for the situation being monitored. The sampling flow rate must be between 0.5 and 5.0 L/min for personal sampling and is commonly set between 1 and 2 L/min. Always choose a flow rate that will not produce overloaded filters.

5.2.5. Calibrate each sampling pump before and after sampling with a calibration cassette in-line (Note: This calibration cassette should be from the same lot of cassettes used for sampling). Use a primary standard (e.g. bubble burette) to calibrate each pump. If possible, calibrate at the sampling site.

Note: If sampling site calibration is not possible, environmental influences may affect the flow rate. The extent is dependent on the type of pump used. Consult with the pump manufacturer to determine dependence on environmental influences. If the pump is affected by temperature and pressure changes, use the formula in Appendix B to this section to calculate the actual flow rate.

5.2.6. Connect each pump to the base of each sampling cassette with flexible tubing. Remove the end cap of each cassette and take each air sample open face. Assure that each sample cassette is held open side down in the employee's breathing zone during sampling. The distance from the nose/mouth of the employee to the cassette should be about 10 cm. Secure the cassette on the collar or lapel of the employee using spring clips or other similar devices.

5.2.7. A suggested minimum air volume when sampling to determine TWA compliance is 25 L. For Excursion Limit (30 min sampling time) evaluations, a minimum air volume of 48 L is recommended.

5.2.8. The most significant problem when sampling for asbestos is overloading the filter with non-asbestos dust. Suggested maximum air sample volumes for specific environments are:

Environment	Air vol. (L)
Asbestos removal operations (visible dust).	100
Asbestos removal operations (little dust).	240
Office environments	400 to 2,400

Caution: Do not overload the filter with dust. High levels of non-fibrous dust particles may obscure fibers on the filter and lower the count or make counting impossible. If more than about 25 to 30% of the field area is obscured with dust, the result may be biased low. Smaller air volumes may be necessary when there is excessive non-asbestos dust in the air.

While sampling, observe the filter with a small flashlight. If there is a visible layer of dust on the filter, stop sampling, remove and seal the cassette, and replace with a new sampling assembly. The total dust loading should not exceed 1 mg.

5.2.9. Blank samples are used to determine if any contamination has occurred during sample handling. Prepare two blanks for the first 1 to 20 samples. For sets containing greater than 20 samples, prepare blanks as 10% of the samples. Handle blank samples in the same manner as air samples with one

exception: Do not draw any air through the blank samples. Open the blank cassette in the place where the sample cassettes are mounted on the employee. Hold it open for about 30 seconds. Close and seal the cassette appropriately. Store blanks for shipment with the sample cassettes.

5.2.10. Immediately after sampling, close and seal each cassette with the base and plastic plugs. Do not touch or puncture the filter membrane as this will invalidate the analysis.

5.2.11. Attach a seal (OSHA–21 or equivalent) around each cassette in such a way as to secure the end cap plug and base plug. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

5.3. Sample Shipment

5.3.1. Send the samples to the laboratory with paperwork requesting asbestos analysis. List any known fibrous interferences present during sampling on the paperwork. Also, note the workplace operation(s) sampled.

5.3.2. Secure and handle the samples in such that they will not rattle during shipment nor be exposed to static electricity. Do not ship samples in expanded polystyrene peanuts, vermiculite, paper shreds, or excelsior. Tape sample cassettes to sheet bubbles and place in a container that will cushion the samples without rattling.

5.3.3. To avoid the possibility of sample contamination, always ship bulk samples in separate mailing containers.

6. Analysis

6.1. Safety Precautions

6.1.1. Acetone is extremely flammable and precautions must be taken not to ignite it. Avoid using large containers or quantities of acetone. Transfer the solvent in a ventilated laboratory hood. Do not use acetone near any open flame. For generation of acetone vapor, use a spark free heat source.

6.1.2. Any asbestos spills should be cleaned up immediately to prevent dispersal of fibers. Prudence should be exercised to avoid contamination of laboratory facilities or exposure of personnel to asbestos. Asbestos spills should be cleaned up with wet methods and/or a High Efficiency Particulate-Air (HEPA) filtered vacuum.

Caution: Do not use a vacuum without a HEPA filter—It will disperse fine asbestos fibers in the air.

6.2. Equipment

6.2.1. Phase contrast microscope with binocular or trinocular head.

6.2.2. Widefield or Huygenian 10X eyepieces (NOTE: The eyepiece containing the graticule must be a focusing eyepiece. Use a 40X phase objective with a numerical aperture of 0.65 to 0.75).

6.2.3. Kohler illumination (if possible) with green or blue filter.

6.2.4. Walton-Beckett Graticule, type G–22 with 100 ± 2 µm projected diameter.

6.2.5. Mechanical stage. A rotating mechanical stage is convenient for use with polarized light.

6.2.6. Phase telescope.

6.2.7. Stage micrometer with 0.01-mm subdivisions.

6.2.8. Phase-shift test slide, mark II (Available from PTR optics Ltd., and also McCrone).

6.2.9. Precleaned glass slides, 25 mm X 75 mm. One end can be frosted for convenience in writing sample numbers, etc., or paste-on labels can be used.

6.2.10. Cover glass #1½.

6.2.11. Scalpel (#10, curved blade).

6.2.12. Fine tipped forceps.

6.2.13. Aluminum block for clearing filter (see Appendix D and Figure 4).

6.2.14. Automatic adjustable pipette, 100- to 500-µL.

6.2.15. Micropipette, 5 µL.

6.3. Reagents

6.3.1. Acetone (HPLC grade).

6.3.2. Triacetin (glycerol triacetate).

6.3.3. Lacquer or nail polish.

6.4. Standard Preparation

A way to prepare standard asbestos samples of known concentration has not been developed. It is possible to prepare replicate samples of nearly equal concentration. This has been performed through the PAT program. These asbestos samples are distributed by the AIHA to participating laboratories.

Since only about one-fourth of a 25-mm sample membrane is required for an asbestos count, any PAT sample can serve as a "standard" for replicate counting.

6.5. Sample Mounting

Note: See Safety Precautions in Section 6.1. before proceeding. The objective is to produce samples with a smooth (non-grainy) background in a medium with a refractive index of approximately 1.46. The technique below collapses the filter for easier focusing and produces permanent mounts which are useful for quality control and interlaboratory comparison.

An aluminum block or similar device is required for sample preparation.

6.5.1. Heat the aluminum block to about 70° C. The hot block should not be used on any surface that can be damaged by either the heat or from exposure to acetone.

6.5.2. Ensure that the glass slides and cover glasses are free of dust and fibers.

6.5.3. Remove the top plug to prevent a vacuum when the cassette is opened. Clean the outside of the cassette if necessary. Cut the seal and/or tape on the cassette with a razor blade. Very carefully separate the base from the extension cowl, leaving the filter and backup pad in the base.

6.5.4. With a rocking motion cut a triangular wedge from the filter using the scalpel. This wedge should be one-sixth to one-fourth of the filter. Grasp the filter wedge with the forceps on the perimeter of the filter which was clamped between the cassette pieces. DO NOT TOUCH the filter with your finger. Place the filter on the glass slide sample side up. Static electricity will usually keep the filter on the slide until it is cleared.

6.5.5. Place the tip of the micropipette containing about 200 µL acetone into the aluminum block. Insert the glass slide into the receiving slot in the aluminum block. Inject the acetone into the block with slow, steady pressure on the plunger while holding the pipette firmly in place. Wait 3 to 5 seconds for the filter to clear, then remove the pipette and slide from the aluminum block.

6.5.6. Immediately (less than 30 seconds) place 2.5 to 3.5 µL of triacetin on the filter (**Note:** Waiting longer than 30 seconds will result in increased index of refraction and decreased contrast between the fibers and the preparation. This may also lead to separation of the cover slip from the slide).

6.5.7. Lower a cover slip gently onto the filter at a slight angle to reduce the possibility of forming air bubbles. If more than 30 seconds have elapsed between acetone exposure and triacetin application, glue the edges of the cover slip to the slide with lacquer or nail polish.

6.5.8. If clearing is slow, warm the slide for 15 min on a hot plate having a surface temperature of about 50° C to hasten clearing. The top of the hot block can be used if the slide is not heated too long.

6.5.9. Counting may proceed immediately after clearing and mounting are completed.

6.6. Sample Analysis

Completely align the microscope according to the manufacturer's instructions. Then, align the microscope using the following general alignment routine at the beginning of every counting session and more often if necessary.

6.6.1. Alignment

(1) Clean all optical surfaces. Even a small amount of dirt can significantly degrade the image.

(2) Rough focus the objective on a sample.

(3) Close down the field iris so that it is visible in the field of view. Focus the image of the iris with the condenser focus. Center the image of the iris in the field of view.

(4) Install the phase telescope and focus on the phase rings. Critically center the rings. Misalignment of the rings results in astigmatism which will degrade the image.

(5) Place the phase-shift test slide on the microscope stage and focus on the lines. The analyst must see line set 3 and should see at least parts of 4 and 5 but, not see line set 6 or 6. A microscope/microscopist combination which does not pass this test may not be used.

6.6.2. Counting Fibers

(1) Place the prepared sample slide on the mechanical stage of the microscope. Position the center of the wedge under the objective lens and focus upon the sample.

(2) Start counting from one end of the wedge and progress along a radial line to the other end (count in either direction from perimeter to wedge tip). Select fields randomly, without looking into the eyepieces, by slightly advancing the slide in one direction with the mechanical stage control.

(3) Continually scan over a range of focal planes (generally the upper 10 to 15 µm of the filter surface) with the fine focus control during each field count. Spend at least 5 to 15 seconds per field.

(4) Most samples will contain asbestos fibers with fiber diameters less than 1 µm. Look carefully for faint fiber images. The small diameter fibers will be very hard to see.

However, they are an important contribution to the total count.

(5) Count only fibers equal to or longer than 5 µm. Measure the length of curved fibers along the curve.

(6) Count fibers which have a length to width ratio of 3:1 or greater.

(7) Count all the fibers in at least 20 fields. Continue counting until either 100 fibers are counted or 100 fields have been viewed; whichever occurs first. Count all the fibers in the final field.

(8) Fibers lying entirely within the boundary of the Walton-Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle shall receive a count of ½. Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area. If a fiber touches the circle, it is considered to cross the line.

(9) Count bundles of fibers as one fiber unless individual fibers can be clearly identified and each individual fiber is clearly not connected to another counted fiber. See Figure 2 for counting conventions.

(10) Record the number of fibers in each field in a consistent way such that filter non-uniformity can be assessed.

(11) Regularly check phase ring alignment.

(12) When an agglomerate (mass of material) covers more than 25% of the field of view, reject the field and select another. Do not include it in the number of fields counted.

(13) Perform a "blind recount" of 1 in every 10 filter wedges (slides). Re-label the slides using a person other than the original counter.

6.7. Fiber Identification

As previously mentioned in Section 1.3., PCM does not provide positive confirmation of asbestos fibers. Alternate differential counting techniques should be used if discrimination is desirable. Differential counting may include primary discrimination based on morphology, polarized light analysis of fibers, or modification of PCM data by Scanning Electron or Transmission Electron Microscopy.

A great deal of experience is required to routinely and correctly perform differential counting. It is discouraged unless it is legally necessary. Then, only if a fiber is obviously not asbestos should it be excluded from the count. Further discussion of this technique can be found in reference 8.10.

If there is a question whether a fiber is asbestos or not, follow the rule:

"WHEN IN DOUBT, COUNT."

6.8. Analytical Recommendations—Quality Control System

6.8.1. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos or an equivalent course.

6.8.2. Each laboratory engaged in asbestos counting shall set up a slide trading arrangement with at least two other laboratories in order to compare performance and eliminate inbreeding of error. The slide exchange occurs at least semiannually. The round robin results shall be posted where all analysts can view individual analyst's results.

6.8.3. Each laboratory engaged in asbestos counting shall participate in the Proficiency Analytical Testing Program, the Asbestos Analyst Registry or equivalent.

6.8.4. Each analyst shall select and count prepared slides from a "slide bank". These are quality assurance counts. The slide bank shall be prepared using uniformly distributed samples taken from the workload. Fiber densities should cover the entire range routinely analyzed by the laboratory. These slides are counted blind by all counters to establish an original standard deviation. This historical distribution is compared with the quality assurance counts. A counter must have 95% of all quality control samples counted within three standard deviations of the historical mean. This count is then integrated into a new historical mean and standard deviation for the slide.

The analyses done by the counters to establish the slide bank may be used for an interim quality control program if the data are treated in a proper statistical fashion.

7. CALCULATIONS

7.1. Calculate the estimated airborne asbestos fiber concentration on the filter sample using the following formula:
where:

AC=Airborne fiber concentration

$$AC = \frac{\left[\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right)\right] \times ECA}{1000 \times FR \times T \times MFA}$$

FB=Total number of fibers greater than 5 µm counted

FL=Total number of fields counted on the filter

BFB=Total number of fibers greater than 5 µm counted in the blank

BFL=Total number of fields counted on the blank

ECA=Effective collecting area of filter (385 mm² nominal for a 25-mm filter.)

FR=Pump flow rate (L/min)

MFA=Microscope count field area (mm²). This is 0.00785 mm² for a Walton-Beckett Graticule.

T=Sample collection time (min)

1,000=Conversion of L to cc

Note: The collection area of a filter is seldom equal to 385 mm². It is appropriate for laboratories to routinely monitor the exact diameter using an inside micrometer. The collection area is calculated according to the formula:

$Area = \pi(d/2)^2$

7.2. Short-cut Calculation

Since a given analyst always has the same interpupillary distance, the number of fields per filter for a particular analyst will remain constant for a given size filter. The field size for that analyst is constant (i.e. the analyst is using an assigned microscope and is not changing the reticle).

For example, if the exposed area of the filter is always 385 mm² and the size of the field is always 0.00785 mm², the number of fields per filter will always be 49,000. In addition it is necessary to convert liters of air to cc. These three constants can then be combined such that ECA/(1,000 X MFA)=49. The previous equation simplifies to:

$$AC = \frac{\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right) \times 49}{FR \times T}$$

7.3. Recount Calculations

As mentioned in step 13 of Section 6.6.2., a "blind recount" of 10% of the slides is performed. In all cases, differences will be observed between the first and second counts of the same filter wedge. Most of these differences will be due to chance alone, that is, due to the random variability (precision) of the count method. Statistical recount criteria enables one to decide whether observed differences can be explained due to chance alone or are probably due to systematic differences between analysts, microscopes, or other biasing factors.

The following recount criterion is for a pair of counts that estimate AC in fibers/cc. The criterion is given at the type-I error level. That is, there is 5% maximum risk that we will reject a pair of counts for the reason that one might be biased, when the large observed difference is really due to chance.

Reject a pair of counts if:

$$\left|\sqrt{AC_2} - \sqrt{AC_1}\right| > 2.78 \times \left(\sqrt{AC_{avg}}\right) \times CV_{FB}$$

Where:

AC1=lower estimated airborne fiber concentration

AC2=higher estimated airborne fiber concentration

ACavg=average of the two concentration estimates

CV_{FB}=CV for the average of the two concentration estimates

If a pair of counts are rejected by this criterion then, recount the rest of the filters in the submitted set. Apply the test and reject any other pairs failing the test. Rejection shall include a memo to the industrial hygienist stating that the sample failed a statistical test for homogeneity and the true

air concentration may be significantly different than the reported value.

7.4. Reporting Results

Report results to the industrial hygienist as fibers/cc. Use two significant figures. If multiple analyses are performed on a sample, an average of the results is to be reported unless any of the results can be rejected for cause.

8. References

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8.2. *Asbestos Research Council: The Measurement of Airborne Asbestos Dust by the Membrane Filter Method* (Technical Note), Asbestos Research Council, Rockdale, Lancashire, Great Britain, 1969.

8.3. Bayer, S.G., Zumwalde, R.D., Brown, T.A., *Equipment and Procedure for Mounting Millipore Filters and Counting Asbestos Fibers by Phase Contrast Microscopy,* Bureau of Occupational Health, U.S. Dept. of Health, Education and Welfare, Cincinnati, OH, 1969.

8.4. *NIOSH Manual of Analytical Methods,* 2nd ed., Vol. 1 (DHEW/NIOSH Pub. No. 77–157–A). National Institute for Occupational Safety and Health, Cincinnati, OH, 1977. pp. 239–1-239–21.

8.5. *Asbestos,* Code of Federal Regulations 29 CFR 1910.1001. 1971.

8.6. *Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite. Final Rule,* **Federal Register** 51:119 (20 June 1986). pp.22612–22790.

8.7. *Asbestos, Tremolite, Anthophyllite, and Actinolite,* Code of Federal Regulations 1910.1001. 1988. pp 711–752.

8.8. *Criteria for a Recommended Standard—Occupational Exposure to Asbestos* (DHEW/NIOSH Pub. No. HSM 72–10267), National Institute for Occupational Safety and Health NIOSH, Cincinnati,OH, 1972. pp. III–1–III–24.

8.9. Leidel, N.A., Bayer,S.G., Zumwalde, R.D.,Busch, K.A., *USPHS/NIOSH Membrane Filter Method for Evaluating Airborne Asbestos Fibers* (DHEW/NIOSH Pub. No. 79–127). National Institute for Occupational Safety and Health, Cincinnati, OH, 1979.

8.10. Dixon, W.C., *Applications of Optical Microscopy in Analysis of Asbestos and Quartz,* Analytical Techniques in Occupational Health Chemistry, edited by D.D. Dollberg and A.W. Verstuyft. Wash. D.C.: American Chemical Society, (ACS Symposium Series 120) 1980. pp. 13–41.

Quality Control

The OSHA asbestos regulations require each laboratory to establish a quality control program. The following is presented as an example of how the OSHA-SLTC constructed its internal CV curve as part of meeting this requirement. Data for the CV curve shown below is from 395 samples collected during OSHA compliance inspections and analyzed from October 1980 through April 1986.

Each sample was counted by 2 to 5 different counters independently of one another. The standard deviation and the CV statistic was calculated for each sample. This data was then plotted on a graph of CV vs. fibers/mm². A least squares regression was performed using the following equation:

$CV=\text{antilog}1_{10}[A(\log_{10}(x))^2+B(\log_{10}(x))+C]$

where:

x=the number of fibers/mm²

Application of least squares gave:

A=0.182205

B=−0.973343

C=0.327499

Using these values, the equation becomes:

$CV=\text{antilog}_{10}[0.182205(\log_{10}(x))^2-0.973343(\log_{10}(x))+0.327499]$

Sampling Pump Flow Rate Corrections

This correction is used if a difference greater than 5% in ambient temperature and/or pressure is noted between calibration and sampling sites and the pump does not compensate for the differences.

$$Q_{act}=Q_{cal}\times\sqrt{\left(\frac{P_{cal}}{P_{act}}\right)\times\left(\frac{T_{act}}{T_{cal}}\right)}$$

Where:

Q_{act}=actual flow rate

Q_{cal}=calibrated flow rate (if a rotameter was used, the rotameter value)

P_{cal}=uncorrected air pressure at calibration

P_{act}=uncorrected air pressure at sampling site

T_{act}=temperature at sampling site (K)

T_{cal}=temperature at calibration (K)

Walton-Beckett Graticule

When ordering the Graticule for asbestos counting, specify the exact disc diameter needed to fit the ocular of the microscope and the diameter (mm) of the circular counting area. Instructions for measuring the dimensions necessary are listed:

(1) Insert any available graticule into the focusing eyepiece and focus so that the graticule lines are sharp and clear.

(2) Align the microscope.

(3) Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.

(4) Measure the magnified grid length, PL (μm), using the stage micrometer.

(5) Remove the graticule from the microscope and measure its actual grid length, AL (mm). This can be accomplished by using a mechanical stage fitted with verniers, or a jeweler's loupe with a direct reading scale.

(6) Let D=100 μm. Calculate the circle diameter, d_c (mm), for the Walton-Beckett graticule and specify the diameter when making a purchase:

$$d_c=\frac{AL\times D}{PL}$$

Example: If PL=108 μm, AL=2.93 mm and D=100 μm, then,

$$d_c=\frac{2.93\times 100}{108}=2.71\text{mm}$$

(7) Each eyepiece-objective-reticle combination on the microscope must be calibrated. Should any of the three be changed (by zoom adjustment, disassembly, replacement, etc.), the combination must be recalibrated. Calibration may change if interpupillary distance is changed. Measure the field diameter, D (acceptable range: 100±2 μm) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine the field area (mm²).

Field Area=π(D/2)2

If D=100 μm=0.1 mm, then

Field Area=π{0.1 mm/2)²=0.00785 mm²

The Graticule is available from: Graticules Ltd., Morley Road, Tonbridge TN9 IRN, Kent, England (Telephone 011–44–732–359061). Also available from PTR Optics Ltd., 145 Newton Street, Waltham, MA 02154 [telephone (617) 891–6000] or McCrone Accessories and Components, 2506 S. Michigan Ave., Chicago, IL 60616 [phone (312)-842–7100]. The graticule is custom made for each microscope.

BILLING CODE 4510-26-P

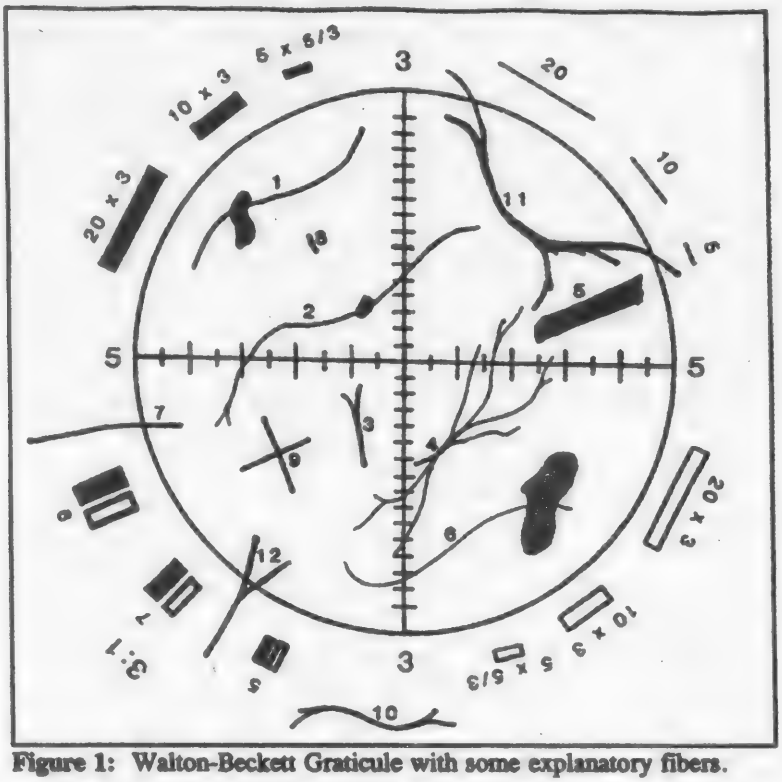

Figure 1: Walton-Beckett Graticule with some explanatory fibers.

COUNTS FOR THE FIBERS IN THE FIGURE

Structure No.	Count	Explanation
1 to 6	1	Single fibers all contained within the circle.
7	½	Fiber crosses circle once.
8	0	Fiber too short.
9	2	Two crossing fibers.
10	0	Fiber outside graticule.
11	0	Fiber crosses graticule twice.
12	½	Although split, fiber only crosses once.

Appendix C to § 1915.1001—Qualitative and Quantitative Fit Testing Procedures. Mandatory

Qualitative Fit Test Protocols

I. Isoamyl Acetate Protocol

A. Odor threshold screening. 1. Three 1-liter glass jars with metal lids (e.g. Mason or Bell jars) are required.

2. Odor-free water (e.g. distilled or spring water) at approximately 25 °C shall be used for the solutions.

3. The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 cc of pure IAA to 800 cc of odor free water in a 1-liter jar and shaking for 30 seconds. This solution shall be prepared new at least weekly.

4. The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well ventilated but shall not be connected to the same recirculating ventilation system.

5. The odor test solution is prepared in a second jar by placing 0.4 cc of the stock solution into 500 cc of odor free water using a clean dropper or pipette. Shake for 30 seconds and allow to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution may be used for only one day.

6. A test blank is prepared in a third jar by adding 500 cc of odor free water.

7. The odor test and test blank jars shall be labelled 1 and 2 for jar identification. If the labels are put on the lids they can be periodically peeled, dried off and switched to maintain the integrity of the test.

8. The following instructions shall be typed on a card and placed on the table in front of the two test jars (i.e. 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

9. The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

10. If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test may not be used.

11. If the test subject correctly identifies the jar containing the odor test solution, the

test subject may proceed to respirator selection and fit testing.

B. *Respirator Selection.* 1. The test subject shall be allowed to pick the most comfortable respirator from a selection including respirators of various sizes from different manufacturers. The selection shall include at least five sizes of elastomeric half facepieces, from at least two manufacturers.

2. The selection process shall be conducted in a room separate from the fit-test chamber to prevent odor fatigue. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine a "comfortable" respirator. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, as it is only a review.

3. The test subject should understand that the employee is being asked to select the respirator which provides the most comfortable fit. Each respirator represents a different size and shape and, if fit properly and used properly will provide adequate protection.

4. The test subject holds each facepiece up to the face and eliminates those which obviously do not give a comfortable fit. Normally, selection will begin with a half-mask and if a good fit cannot be found, the subject will be asked to test the full facepiece respirators. (A small percentage of users will not be able to wear any half-mask.)

5. The more comfortable facepieces are noted; the most comfortable mask is donned and *worn at least five minutes* to assess comfort. All donning and adjustments of the facepiece shall be performed by the test subject without assistance from the test conductor or other person. Assistance in assessing comfort can be given by discussing the points in #6 below. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.

6. Assessment of comfort shall include reviewing the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

- Positioning of mask on nose.
- Room for eye protection.
- Room to talk.
- Positioning mask on face and cheeks.

7. The following criteria shall be used to help determine the adequacy of the respirator fit:

- Chin properly placed.
- Strap tension.
- Fit across nose bridge.
- Distance from nose to chin.
- Tendency to slip.
- Self-observation in mirror.

8. The test subject shall conduct the conventional negative and positive-pressure fit checks (e.g. see ANSI Z88.2–1980). Before conducting the negative- or positive-pressure test the subject shall be told to "seat" the mask by rapidly moving the head from side-to-side and up and down, while taking a few deep breaths.

9. The test subject is now ready for fit testing.

10. After passing the fit test, the test subject shall be questioned again regarding the comfort of the respirator. If it has become uncomfortable, another model of respirator shall be tried.

11. The employee shall be given the opportunity to select a different facepiece and be retested if the chosen facepiece becomes increasingly uncomfortable at any time.

C. Fit test. 1. The fit test chamber shall be similar to a clear 55 gal drum liner suspended inverted over a 2 foot diameter frame, so that the top of the chamber is about 6 inches above the test subject's head. The inside top center of the chamber shall have a small hook attached.

2. Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors. The cartridges or masks shall be changed at least weekly.

3. After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

4. A copy of the following test exercises and rainbow passage shall be taped to the inside of the test chamber:

Test Exercises

i. Breathe normally.

ii. Breathe deeply. Be certain breaths are *deep* and *regular.*

iii. Turn head all the way from one side to the other. Inhale on each side. Be certain movement is complete. Do not bump the respirator against the shoulders.

iv. Nod head up-and-down. Inhale when head is in the full up position (looking toward ceiling). Be certain motions are complete and made about every second. Do not bump the respirator on the chest.

v. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the Rainbow Passage. Reading it will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages which serve the same purpose may also be used.

vi. Jogging in place.

vii. Breathe normally.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

5. Each test subject shall wear the respirator for at a least 10 minutes before starting the fit test.

6. Upon entering the test chamber, the test subject shall be given a 6 inch by 5 inch piece of paper towel or other porous absorbent single ply material, folded in half and wetted with three-quarters of one cc of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber.

7. Allow two minutes for the IAA test concentration to be reached before starting the fit-test exercises. This would be an appropriate time to talk with the test subject, to explain the fit test, the importance of cooperation, the purpose for the head exercises, or to demonstrate some of the exercises.

8. Each exercise described in #4 above shall be performed for at least one minute.

9. If at any time during the test, the subject detects the banana-like odor of IAA, the test has failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

10. If the test is failed, the subject shall return to the selection room and remove the respirator, repeat the odor sensitivity test, select and put on another respirator, return to the test chamber, and again begin the procedure described in the c(4) through c(8) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait about 5 minutes before retesting. Odor sensitivity will usually have returned by this time.

11. If a person cannot pass the fit test described above wearing a half-mask respirator from the available selection, full facepiece models must be used.

12. When a respirator is found that passes the test, the subject breaks the faceseal and takes a breath before exiting the chamber. This is to assure that the reason the test subject is not smelling the IAA is the good fit of the respirator facepiece seal and not olfactory fatigue.

13. When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test. To keep the area from becoming contaminated, the used towels shall be kept in a self-sealing bag so there is no significant IAA concentration buildup in the test chamber during subsequent tests.

14. At least two facepieces shall be selected for the IAA test protocol. The test subject shall be given the opportunity to wear them for one week to choose the one which is more comfortable to wear.

15. Persons who have successfully passed this fit test with a half-mask respirator may be assigned the use of the test respirator in atmospheres with up to 10 times the PEL of airborne asbestos. In atmospheres greater than 10 times, and less than 100 times the PEL (up to 100 ppm), the subject must pass the IAA test using a full face negative pressure respirator. (The concentration of the 1AA inside the test chamber must be increased by ten times for QLFT of the full facepiece.)

16. The test shall not be conducted if there is any hair growth between the skin the facepiece sealing surface.

17. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a

positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.

18. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respirator diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

19. Qualitative fit testing shall be repeated at least every six months.

20. In addition, because the sealing of the respirator may be affected, qualitative fit testing shall be repeated immediately when the test subject has a:

(1) Weight change of 20 pounds or more,

(2) Significant facial scarring in the area of the facepiece seal,

(3) Significant dental changes; i.e.; multiple extractions without prothesis, or acquiring dentures,

(4) Reconstructive or cosmetic surgery, or

(5) Any other condition that may interfere with facepiece sealing.

D. *Recordkeeping.* A summary of all test results shall be maintained in each office for 3 years. The summary shall include:

(1) Name of test subject.

(2) Date of testing.

(3) Name of the test conductor.

(4) Respirators selected (indicate manufacturer, model, size and approval number).

(5) Testing agent.

II. *Saccharin Solution Aerosol Protocol*

A. *Respirator selection.* Respirators shall be selected as described in section IB (respirator selection) above, except that each respirator shall be equipped with a particulate filter.

B. Taste Threshold Screening.

1. An enclosure about head and shoulders shall be used for threshold screening (to determine if the individual can taste saccharin) and for fit testing. The enclosure shall be approximately 12 inches in diameter by 14 inches tall with at least the front clear to allow free movement of the head when a respirator is worn.

2. The test enclosure shall have a three-quarter inch hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

3. The entire screening and testing procedure shall be explained to the test subject prior to conducting the screening test.

4. During the threshold screening test, the test subject shall don the test enclosure and breathe with open mouth with tongue extended.

5. Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

6. The threshold check solution consists of 0.83 grams of sodium saccharin, USP in water. It can be prepared by putting 1 cc of the test solution (see C 7 below) in 100 cc of water.

7. To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then is released and allowed to fully expand.

8. Ten squeezes of the nebulizer bulb are repeated rapidly and then the test subject is asked whether the saccharin can be tasted.

9. If the first response is negative, ten more squeezes of the nebulizer bulb are repeated rapidly and the test subject is again asked whether the saccharin can be tasted.

10. If the second response is negative ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin can be tasted.

11. The test conductor will take note of the number of squeezes required to elicit a taste response.

12. If the saccharin is not tasted after 30 squeezes (Step 10), the saccharin fit test cannot be performed on the test subject.

13. If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

14. Correct use of the nebulizer means that approximately 1 cc of liquid is used at a time in the nebulizer body.

15. The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least every four hours.

C. Fit test. 1. The test subject shall don and adjust the respirator without the assistance from any person.

2. The fit test uses the same enclosure described in IIB above.

3. Each test subject shall wear the respirator for a least 10 minutes before starting the fit test.

4. The test subject shall don the enclosure while wearing the respirator selected in section IB above. This respirator shall be properly adjusted and equipped with a particulate filter.

5. The test subject may not eat, drink (except plain water), or chew gum for 15 minutes before the test.

6. A second DeVilbiss Model 40 Inhalation Medication Nebulizer is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

7. The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 cc of warm water.

8. As before, the test subject shall breathe with mouth open and tongue extended.

9. The nebulizer is inserted into the hole in the front of the enclosure and the fit test solution is sprayed into the enclosure using the same technique as for the taste threshold screening and the same number of squeezes required to elicit a taste response in the screening. (See B8 through B10 above).

10. After generation of the aerosol read the following instructions to the test subject. The test subject shall perform the exercises for one minute each.

i. Breathe normally.

ii. Breathe deeply. Be certain breaths are *deep* and *regular.*

iii. Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.

iv. Nod head up-and-down. Be certain motions are complete. Inhale when head is in the full up position (when looking toward the ceiling). Do not to bump the respirator on the chest.

v. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the Rainbow Passage. Reading it will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages which serve the same purpose may also be used.

vi. Jogging in place.

vii. Breathe normally.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

11. At the beginning of each exercise, the aerosol concentration shall be replenished using one-half the number of squeezes as initially described in C9.

12. The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected.

13. If the saccharin is detected the fit is deemed unsatisfactory and a different respirator shall be tried.

14. At least two facepieces shall be selected by the IAA test protocol. The test subject shall be given the opportunity to wear them for one week to choose the one which is more comfortable to wear.

15. Successful completion of the test protocol shall allow the use of the half mask tested respirator in contaminated atmospheres up to 10 times the PEL of asbestos. In other words this protocol may be used assign protection factors no higher than ten.

16. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface.

17. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.

18. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respirator diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

19. Qualitative fit testing shall be repeated at least every six months.

20. In addition, because the sealing of the respirator may be affected, qualitative fit testing shall be repeated immediately when the test subject has a:

(1) Weight change of 20 pounds or more,

(2) Significant facial scarring in the area of the facepiece seal,

(3) Significant dental changes; i.e.; multiple extractions without prothesis, or acquiring dentures,

(4) Reconstructive or cosmetic surgery, or

(5) Any other condition that may interfere with facepiece sealing.

D. Recordkeeping. A summary of all test results shall be maintained in each office for 3 years. The summary shall include:

(1) Name of test subject

(2) Date of testing.

(3) Name of test conductor.

(4) Respirators selected (indicate manufacturer, model, size and approval number).

(5) Testing agent.

III. Irritant Fume Protocol

A. Respirator selection. Respirators shall be selected as described in section IB above, except that each respirator shall be equipped with a combination of high-efficiency and acid-gas cartridges.

B. Fit test. 1. The test subject shall be allowed to smell a weak concentration of the irritant smoke to familiarize the subject with the characteristic odor.

2. The test subject shall properly don the respirator selected as above, and wear it for at least 10 minutes before starting the fit test.

3. The test conductor shall review this protocol with the test subject before testing.

4. The test subject shall perform the conventional positive pressure and negative pressure fit checks (see ANSI Z88.2 1980). Failure of either check shall be cause to select an alternate respirator.

5. Break both ends of a ventilation smoke tube containing stannic oxychloride, such as the MSA part #5645, or equivalent. Attach a short length of tubing to one end of the smoke tube. Attach the other end of the smoke tube to a low pressure air pump set to deliver 200 milliliters per minute.

6. Advise the test subject that the smoke can be irritating to the eyes and instruct the subject to keep the eyes closed while the test is performed.

7. The test conductor shall direct the stream of irritant smoke from the tube towards the faceseal area of the test subject. The person conducting the test shall begin with the tube at least 12 inches from the facepiece and gradually move to within one inch, moving around the whole perimeter of the mask.

8. The test subject shall be instructed to do the following exercises while the respirator is being challenged by the smoke. Each exercise shall be performed for one minute.

i. Breathe normally.

ii. Breathe deeply. Be certain breaths are *deep* and *regular.*

iii. Turn head all the way from one side to the other. Be certain movement is complete. Inhale on each side. Do not bump the respirator against the shoulders.

iv. Nod head up-and-down. Be certain motions are complete and made every second. Inhale when head is in the full up position (looking toward ceiling). Do not bump the respirator against the chest.

v. Talking. Talk aloud and slowly for several minutes. The following paragraph is called the Rainbow Passage. Reading it will result in a wide range of facial movements, and thus be useful to satisfy this requirement. Alternative passages which serve the same purpose may also be used.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two end apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond his reach, his friends say he is looking for the pot of gold at the end of the rainbow.

vi. Jogging in Place.

vii. Breathe normally.

9. The test subject shall indicate to the test conductor if the irritant smoke is detected. If smoke is detected, the test conductor shall stop the test. In this case, the tested respirator is rejected and another respirator shall be selected.

10. Each test subject passing the smoke test (i.e. without detecting the smoke) shall be given a sensitivity check of smoke from the same tube to determine if the test subject reacts to the smoke. Failure to evoke a response shall void the fit test.

11. Steps B4, B9, B10 of this fit test protocol shall be performed in a location with exhaust ventilation sufficient to prevent general contamination of the testing area by the test agents.

12. At least two facepieces shall be selected by the IAA test protocol. The test subject shall be given the opportunity to wear them for one week to choose the one which is more comfortable to wear.

13. Respirators successfully tested by the protocol may be used in contaminated atmospheres up to ten times the PEL of asbestos.

14. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface.

15. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.

16. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respirator diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

17. Qualitative fit testing shall be repeated at least every six months.

18. In addition, because the sealing of the respirator may be affected, qualitative fit testing shall be repeated immediately when the test subject has a:

(1) Weight change of 20 pounds or more,

(2) Significant facial scarring in the area of the facepiece seal,

(3) Significant dental changes; i.e.; multiple extractions without prothesis, or acquiring dentures,

(4) Reconstructive or cosmetic surgery, or

(5) Any other condition that may interfere with facepiece sealing.

D. Recordkeeping. A summary of all test results shall be maintained in each office for 3 years. The summary shall include:

(1) Name of test subject

(2) Date of testing.

(3) Name of test conductor.

(4) Respirators selected (indicate manufacturer, model, size and approval number).

(5) Testing agent

Quantitative Fit Test Procedures

1. General

a. The method applies to the negative-pressure non-powered air-purifying respirators only.

b. The employer shall assign one individual who shall assume the full responsibility for implementing the respirator quantitative fit test program.

2. *Definition*

a. "Quantitative Fit Test" means the measurement of the effectiveness of a respirator seal in excluding the ambient atmosphere. The test is performed by dividing the measured concentration of challenge agent in a test chamber by the measured concentration of the challenge agent inside the respirator facepiece when the normal air purifying element has been replaced by an essentially perfect purifying element.

b. "Challenge Agent" means the air contaminant introduced into a test chamber so that its concentration inside and outside the respirator may be compared.

c. "Test Subject" means the person wearing the respirator for quantitative fit testing.

d. "Normal Standing Position" means standing erect and straight with arms down along the sides and looking straight ahead.

e. "Fit Factor" means the ratio of challenge agent concentration outside with respect to the inside of a respirator inlet covering (facepiece or enclosure).

3. Apparatus

a. *Instrumentation.* Corn oil, sodium chloride or other appropriate aerosol generation, dilution, and measurement systems shall be used for quantitative fit test.

b. *Test chamber.* The test chamber shall be large enough to permit all test subjects to freely perform all required exercises without distributing the challenge agent concentration or the measurement apparatus. The test chamber shall be equipped and constructed so that the challenge agent is effectively isolated from the ambient air yet uniform in concentration throughout the chamber.

c. When testing air-purifying respirators, the normal filter or cartridge element shall be replaced with a high-efficiency particular filter supplied by the same manufacturer.

d. The sampling instrument shall be selected so that a strip chart record may be made of the test showing the rise and fall of challenge agent concentration with each inspiration and expiration at fit factors of at least 2,000.

e. The combination of substitute air-purifying elements (if any), challenge agent, and challenge agent concentration in the test chamber shall be such that the test subject is not exposed in excess of PEL to the challenge agent at any time during the testing process.

f. The sampling port on the test specimen respirator shall be placed and constructed so that there is no detectable leak around the port, a free air flow is allowed into the sampling line at all times and so there is no interference with the fit or performance of the respirator.

g. The test chamber and test set-up shall permit the person administering the test to observe one test subject inside the chamber during the test.

h. The equipment generating the challenge atmosphere shall maintain the concentration of challenge agent constant within a 10 percent variation for the duration of the test.

i. The time lag (interval between an event and its being recorded on the strip chart) of the instrumentation may not exceed 2 seconds.

j. The tubing for the test chamber atmosphere and for the respirator sampling port shall be the same diameter, length and material. It shall be kept as short as possible. The smallest diameter tubing recommended by the manufacturer shall be used.

k. The exhaust flow from the test chamber shall pass through a high-efficiency filter before release to the room.

l. When sodium chloride aerosol is used, the relative humidity inside the test chamber shall not exceed 50 percent.

4. Procedural Requirements

a. The fitting of half-mask respirators should be started with those having multiple sizes and a variety of interchangeable cartridges and canisters such as the MSA Comfo II-M, Norton M, Survivair M, A–O M, or Scott-M. Use either of the tests outlined below to assure that the facepiece is properly adjusted.

(1) *Positive pressure test.* With the exhaust port(s) blocked, the negative pressure of slight inhalation should remain constant for several seconds.

(2) *Negative pressure test.* With the intake port(s) blocked, the negative pressure slight inhalation should remain constant for several seconds.

b. After a facepiece is adjusted, the test subject shall wear the facepiece for at least 5 minutes before conducting a qualitative test by using either of the methods described below and using the exercise regime described in 5.a., b., c., d. and e.

(1) *Isoamyl acetate test.* When using organic vapor cartridges, the test subject who can smell the odor should be unable to detect the odor of isoamyl acetate squirted into the air near the most vulnerable portions of the facepiece seal. In a location which is separated from the test area, the test subject shall be instructed to close her/his eyes during the test period. A combination cartridge or canister with organic vapor and high-efficiency filters shall be used when available for the particular mask being tested. The test subject shall be given an opportunity to smell the odor of isoamyl acetate before the test is conducted.

(2) *Irritant fume test.* When using high-efficiency filters, the test subject should be unable to detect the odor of irritant fume (stannic chloride or titanium tetrachloride ventilation smoke tubes) squirted into the air near the most vulnerable portions of the facepiece seal. The test subject shall be instructed to close her/his eyes during the test period.

c. The test subject may enter the quantitative testing chamber only if she or he has obtained a satisfactory fit as stated in 4.b. of this Appendix.

d. Before the subject enters the test chamber, a reasonably stable challenge agent concentration shall be measured in the test chamber.

e. Immediately after the subject enters the test chamber, the challenge agent concentration inside the respirator shall be measured to ensure that the peak penetration does not exceed 5 percent for a half-mask and 1 percent for a full facepiece.

f. A stable challenge agent concentration shall be obtained prior to the actual start of testing.

1. Respirator restraining straps may not be over-tightened for testing. The straps shall be adjusted by the wearer to give a reasonably comfortable fit typical of normal use.

5. *Exercise Regime.* Prior to entering the test chamber, the test subject shall be given complete instructions as to her/his part in the test procedures. The test subject shall perform the following exercises, in the order given, for each independent test.

a. *Normal Breathing (NB).* In the normal standing position, without talking, the subject shall breathe normally for at least one minute.

b. *Deep Breathing (DB).* In the normal standing position the subject shall do deep breathing for at least one minute pausing so as not to hyperventilate.

c. *Turning head side to side (SS).* Standing in place the subject shall slowly turn his/her head from side between the extreme positions to each side. The head shall be held at each extreme position for at least 5 seconds. Perform for at least three complete cycles.

d. *Moving head up and down (UD).* Standing in place, the subject shall slowly move his/her head up and down between the extreme position straight up and the extreme position straight down. The head shall be held at each extreme position for at least 5 seconds. Perform for at least three complete cycles.

e. *Reading (R).* The subject shall read out slowly and loud so as to be heard clearly by the test conductor or monitor. The test subject shall read the "rainbow passage" at the end of this section.

f. *Grimace (G).* The test subject shall grimace, smile, frown, and generally contort the face using the facial muscles. Continue for at least 15 seconds.

g. *Bend over and touch toes (B).* The test subject shall bend at the waist and touch toes and return to upright position. Repeat for at least 30 seconds.

h. *Jogging in place (J).* The test subject shall perform jog in place for at least 30 seconds.

i. *Normal Breathing (NB).* Same as exercise a.

Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

6. The test shall be terminated whenever any single peak penetration exceeds 5 percent for half-masks and 1 percent for full facepieces. The test subject may be refitted and retested. If two the three required tests are terminated, the fit shall be deemed inadequate. (See paragraph 4.h.).

7. Calculation of Fit Factors

a. The fit factor determined by the quantitative fit test equals the average concentration inside the respirator.

b. The average test chamber concentration is the arithmetic average of the test chamber concentration at the beginning and of the end of the test.

c. The average peak concentration of the challenge agent inside the respirator shall be the arithmetic average peak concentrations for each of the nine exercises of the test which are computed as the arithmetic average of the peak concentrations found for each breath during the exercise.

d. The average peak concentration for an exercise may be determined graphically if there is not a great variation in the peak concentrations during a single exercise.

8. Interpretation of Test Results.

The fit factor measured by the quantitative fit testing shall be the lowest of the three protection factors resulting from three independent tests.

9. Other Requirements

a. The test subject shall not be permitted to wear a half-mask or full facepiece mask if the minimum fit factor of 100 or 1,000, respectively, cannot be obtained. If hair growth or apparel interfere with a satisfactory fit, then they shall be altered or removed so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the test subject must use a positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.

b. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface.

c. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician trained in respirator diseases or pulmonary medicine to determine whether the test subject can wear a respirator while performing her or his duties.

d. The test subject shall be given the opportunity to wear the assigned respirator for one week. If the respirator does not provide a satisfactory fit during actual use, the test subject may request another QNFT which shall be performed immediately.

e. A respirator fit factor card shall be issued to the test subject with the following information:

(1) Name

(2) Date of fit test.

(3) Protection factors obtained through each manufacturer, model and approval number of respirator tested.

(4) Name and signature of the person that conducted the test.

f. Filters used for qualitative or quantitative fit testing shall be replaced weekly, whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media.

Organic vapor cartridges/canisters shall be replaced daily or sooner if there is any indication of breakthrough by the test agent.

10. In addition, because the sealing of the respirator may be affected, quantitative fit testing shall be repeated immediately when the test subject has a:

(1) Weight change of 20 pounds or more,

(2) Significant facial scarring in the area of the facepiece seal,

(3) Significant dental changes; i.e.; multiple extractions without prothesis, or acquiring dentures,

(4) Reconstructive or cosmetic surgery, or

(5) Any other condition that may interfere with facepiece sealing.

11. Recordkeeping

A summary of all test results shall be maintained in for 3 years. The summary shall include:

(1) Name of test subject

(2) Date of testing.

(3) Name of the test conductor.

(4) Fit factors obtained from every respirator tested (indicate manufacturer, model, size and approval number).

Appendix D to § 1915.1001—Medical Questionnaires. Mandatory

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals above the permissible exposure limit (0.1 f/cc), and who will therefore be included in their employer's medical surveillance program. Part 1 of the appendix contains the Initial Medical Questionnaire, which must be obtained for all new hires who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated Periodical Medical Questionnaire, which must be administered to all employees who are provided periodic medical examinations under the medical surveillance provisions of the standard.

BILLING CODE 4510-26-P

Part 1

INITIAL MEDICAL QUESTIONNAIRE

1. NAME _____

2. SOCIAL SECURITY #_____

3. CLOCK NUMBER_____

4. PRESENT OCCUPATION _____

5. PLANT _____

6. ADDRESS _____

7. _____
(Zip Code)

8. TELEPHONE NUMBER _____

9. INTERVIEWER _____

10. DATE _____

11. Date of Birth _____
Month Day Year

12. Place of Birth _____

13. Sex
1. Male ___
2. Female ___

14. What is your marital status?
1. Single ___
2. Married ___
3. Widowed ___
4. Separated/ Divorced ___

15. Race
1. White ___
2. Black ___
3. Asian ___
4. Hispanic ___
5. Indian ___
6. Other ___

16. What is the highest grade completed in school? _____

(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

17A. Have you ever worked full time (30 hours per week or more) for 6 months or more? 1. Yes _ 2. No__

IF YES TO 17A:

B. Have you ever worked for a year or more in any dusty job? 1. Yes__ 2.No__ 3.Does Not Apply _

Specify job/industry _____ Total Years Worked __

Was dust exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

C. Have you even been exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

Specify job/industry _____ Total Years Worked ___

Was exposure: 1. Mild ___ 2. Moderate ___ 3. Severe ___

D. What has been your usual occupation or job--the one you have worked at the longest?

1. Job occupation _____

2. Number of years employed in this occupation _____

3. Position/job title _____

4. Business, field or industry _____

(Record on lines the years in which you have worked in any of these industries, e.g. 1960-1969)

Have you ever worked:

		YES	NO
E.	In a mine?.....	[__]	[__]
F.	In a quarry?.....	[__]	[__]
G.	In a foundry?.....	[__]	[__]
H.	In a pottery?.....	[__]	[__]
I.	In a cotton, flax or hemp mill?.....	[__]	[__]
J.	With asbestos?.....	[__]	[__]

18. PAST MEDICAL HISTORY

	YES	NO
A. Do you consider yourself to be in good health?	[__]	[__]

If "NO" state reason _____

B. Have you any defect of vision?.....	[__]	[__]

If "YES" state nature of defect _____

C. Have you any hearing defect?.....	[__]	[__]

If "YES" state nature of defect _____

D. Are you suffering from or have you ever suffered from:

	YES	NO
a. Epilepsy (or fits, seizures, convulsions)?	[__]	[__]
b. Rheumatic fever?	[__]	[__]
c. Kidney disease?	[__]	[__]
d. Bladder disease?	[__]	[__]
e. Diabetes?	[__]	[__]
f. Jaundice?	[__]	[__]

19. CHEST COLDS AND CHEST ILLNESSES

19A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time)
1. Yes__ 2. No__ 3. Don't get colds__

20A. During the past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?
1. Yes__ 2. No__

IF YES TO 20A:

B. Did you produce phlegm with any of these chest illnesses?
1. Yes__ 2. No__ 3. Does Not Apply __

C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more?
Number of illnesses ____ No such illnesses ____

21. Did you have any lung trouble before the age of 16?
1. Yes__ 2. No__

22. Have you ever had any of the following?

1A. Attacks of bronchitis? 1. Yes__ 2. No__
IF YES TO 1A:
B. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

C. At what age was your first attack? Age in Years __
Does Not Apply _

2A. Pneumonia (include bronchopneumonia)? 1. Yes_ 2. No_
IF YES TO 2A:
B. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

C. At what age did you first have it? Age in Years __
Does Not Apply _

3A. Hay Fever? 1. Yes__ 2. No__
IF YES TO 3A:
B. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

C. At what age did it start? Age in Years __
Does Not Apply _

23A. Have you ever had chronic bronchitis? 1. Yes__ 2. No__
IF YES TO 23A:
B. Do you still have it? 1. Yes __ 2. No__
3. Does Not Apply _
C. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

D. At what age did it start? Age in Years __
Does Not Apply _

24A. Have you ever had emphysema? 1. Yes__ 2. No__
IF YES TO 24A:
B. Do you still have it? 1. Yes__ 2. No__
3. Does Not Apply _

C. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

D. At what age did it start? Age in Years __
Does Not Apply _

25A. Have you ever had asthma? 1. Yes__ 2. No__
IF YES TO 25A:

B. Do you still have it? 1. Yes__ 2. No__
3. Does Not Apply _

C. Was it confirmed by a doctor? 1. Yes__ 2. No__
3. Does Not Apply _

D. At what age did it start? Age in Years __
Does Not Apply _

E. If you no longer have it, at what age did it stop?
Age stopped __
Does Not Apply _

26. Have you ever had:

A. Any other chest illness? 1. Yes__ 2. No__

If yes, please specify _____

B. Any chest operations? 1. Yes__ 2. No__

If yes, please specify _____

C. Any chest injuries? 1. Yes__ 2. No__

If yes, please specify _____

27A. Has a doctor ever told you that you had heart trouble?
1. Yes__ 2. No__

IF YES TO 27A:

B. Have you ever had treatment for heart trouble in the past 10 years?
1. Yes__ 2. No__
3. Does Not Apply _

28A Has a doctor ever told you that you had high blood pressure? 1. Yes__ 2. No__

IF YES TO 28A:

B. Have you had any treatment for high blood pressure (hypertension in the past 10 years?
1. Yes__ 2. No__
3. Does Not Apply _

29. When did you last have your chest X-rayed?
(Year) __ __ __ __

30. Where did you last have your chest X-rayed (if known)?
_____

What was the outcome? _____

FAMILY HISTORY

31. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:

	FATHER			MOTHER		
	1. Yes	2. No	3. Don't know.	1. Yes	2. No	3. Don't know.
Chronic bronchitis?	___	___	___	___	___	___
Emphysema?	___	___	___	___	___	___
Asthma?	___	___	___	___	___	___
Lung cancer?	___	___	___	___	___	___
Other chest conditions?	___	___	___	___	___	___

F. Is parent currently alive? ___ ___ ___ ___ ___ ___

G. Please Specify ___ Age if Living ___ Age if Living
___ Age at Death ___ Age at Death
___ Don't Know ___ Don't Know

H. Please specify cause of death
_____ _____

COUGH

32A. Do you usually have a cough? (Count cough with first smoke or on first going out of doors. Exclude clearing of throat.) [If no, skip to question 32C.]
1. Yes __ 2. No __

32B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week?
1. Yes __ 2. No __

C. Do you usually cough at all on getting up or first thing in the morning?
1. Yes __ 2. No __

D. Do you usually cough at all during the rest of the day or at night? 1. Yes __ 2. No __

IF YES TO ANY OF ABOVE (32A, B, C, or D), ANSWER THE FOLLOWING.
IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO NEXT PAGE

E. Do you usually cough like this on most days for 3 consecutive months or more during the year?

1. Yes __ 2. No __
3. Does not apply __

F. For how many years have you had the cough?

Number of years __
Does not apply __

33A. Do you usually bring up phlegm from your chest? (Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 33C)

1. Yes __ 2. No __

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week?

1. Yes __ 2. No __

C. Do you usually bring up phlegm at all on getting up or first thing in the morning?

1. Yes __ 2. No __

D. Do you usually bring up phlegm at all during the rest of the day or at night?

1. Yes __ 2. No __

IF YES TO ANY OF THE ABOVE (33A, B, C, or D), ANSWER THE FOLLOWING:
IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO 34A.

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year?

1. Yes __ 2. No __
3. Does not apply __

F. For how many years have you had trouble with phlegm?

Number of years __
Does not apply __

EPISODES OF COUGH AND PHLEGM

34A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year?
*(For persons who usually have cough and/or phlegm)

1. Yes __ 2. No __

If YES TO 34A
B. For how long have you had at least 1 such episode per year?

Number of years ___
Does not apply ___

WHEEZING

35A. Does your chest ever sound wheezy or whistling

1. When you have a cold? 1. Yes ___ 2. No ___

2. Occasionally apart from colds? 1. Yes ___ 2. No ___

3. Most days or nights? 1. Yes ___ 2. No ___

IF YES TO 1, 2, or 3 in 35A

B. For how many years has this been present?

Number of years ___
Does not apply ___

36A. Have you ever had an attack of wheezing that has made you feel short of breath?

1. Yes ___ 2. No ___

IF YES TO 36A

B. How old were you when you had your first such attack?

Age in years ___
Does not apply ___

C. Have you had 2 or more such episodes?

1. Yes ___ 2. No ___
3. Does not apply ___

D. Have you ever required medicine or medicine for the(se) attack(s)?

1. Yes ___ 2. No ___
3.Does not apply ___

BREATHLESSNESS

37. If disabled from walking by any condition other than heart or lung disease, pleasedescribe and proceed to question 39A.

Nature of condition(s)_____

_____

38A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill?

1. Yes ___ 2. No ___

IF YES TO 38A

B. Do you have to walk slower than people of your age on the level because of breathlessness?

1. Yes ___ 2. No ___

3. Does not apply __

C. Do you ever have to stop for breath when walking at your own pace on the level?
1. Yes__ 2. No __
3. Does not apply __

D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level?
1. Yes__ 2. No __
3. Does not apply __

E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs?
1. Yes __ 2. No __
3. Does not apply __

TOBACCO SMOKING

39A. Have you ever smoked cigarettes? (No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.)
1. Yes __ 2. No __

IF YES TO 39A

B. Do you now smoke cigarettes (as of one month age)?
1. Yes __ 2. No __
3. Does not apply __

C. How old were you when you first started regular cigarette smoking?
Age in years __
Does not apply __

D. If you have stopped smoking cigarettes completely, how old were you when you stopped?
Age stopped __
Check if still smoking __
Does not apply __

E. How many cigarettes do you smoke per day now?
Cigarettes per day __
Does not apply __

F. On the average of the entire time you smoked, how many cigarettes did you smoke per day?
Cigarettes per day __
Does not apply __

5 G. Do or did you inhale the cigarette smoke?
1. Does not apply __

2. Not at all __
3. Slightly __
4. Moderately __
5. Deeply __

40A. Have you ever smoked a pipe regularly? (Yes means more than 12 oz. of tobacco in a lifetime.)

1. Yes__ 2. No__

IF YES TO 40A:

FOR PERSONS WHO HAVE EVER SMOKED A PIPE

B. 1. How old were you when you started to smoke a pipe regularly? Age __

2. If you have stopped smoking a pipe completely, how old were you when you stopped?

Age stopped __
Check if still smoking pipe __
Does not apply __

C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week?

__ oz. per week
(a standard pouch of tobacco contains 1 1/2 oz.)
__ Does not apply

D. How much pipe tobacco are you smoking now?

oz. per week ___
Not currently smoking a pipe __

E. Do you or did you inhale the pipe smoke?

1. Never smoked __
2. Not at all __
3. Slightly __
4. Moderately __
5. Deeply __

41A. Have you ever smoked cigars regularly?

1. Yes__ 2. No__

(Yes means more than 1 cigar a week for a year)

IF YES TO 41A

FOR PERSONS WHO HAVE EVER SMOKED CIGARS

B. 1. How old were you when you started smoking cigars regularly? Age __

2.	If you have stopped smoking cigars completely, how old were you when you stopped.	Age stopped _ Check if still smoking cigars _ Does not apply _
C.	On the average over the entire time you smoked cigars, how many cigars did you smoke per week?	Cigars per week Does not apply _
D.	How many cigars are you smoking per week now?	Cigars per week _ Check if not smoking cigars currently _
E.	Do or did you inhale the cigar smoke?	1. Never smoked _ 2. Not at all _ 3. Slightly _ 4. Moderately _ 5. Deeply _

Signature _____ Date _____

Part 2
PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____

2. SOCIAL SECURITY # __ __ __ __ __ __ __ __ __

3. CLOCK NUMBER __ __ __ __ __ __

4. PRESENT OCCUPATION _____

5. PLANT _____

6. ADDRESS _____

7. _____
(Zip Code)

8. TELEPHONE NUMBER _____

9. INTERVIEWER _____

10. DATE _____ __ __ __ __ __ __

11. What is your marital status? 1. Single __ 4. Separated/
2. Married __ Divorced _
3. Widowed __

12. OCCUPATIONAL HISTORY

12A. In the past year, did you work full time (30 hours per week or more) for 6 months or more? 1. Yes ___ 2. No __

IF YES TO 12A:

12B. In the past year, did you work in a dusty job? 1. Yes ___ 2. No __
3. Does Not Apply ___

12C. Was dust exposure: 1. Mild __ 2. Moderate __
3. Severe ___

12D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___

12E. Was exposure: 1. Mild __ 2.Moderate __ 3. Severe __

12F. In the past year, what was your:
1. Job/occupation? _____
2. Position/job title? _____

13. RECENT MEDICAL HISTORY

13A. Do you consider yourself to be in good health? Yes ___ No ___

If NO, state reason _____

13B. In the past year, have you developed:

	Yes	No
Epilepsy?	___	___
Rheumatic fever?	___	___
Kidney disease?	___	___
Bladder disease?	___	___
Diabetes?	___	___
Jaundice?	___	___
Cancer?	___	___

14. CHEST COLDS AND CHEST ILLNESSES

14A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time)
1. Yes ___ 2. No __
3. Don't get colds __

15A. During the past year, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?
1. Yes ___ 2. No __
3. Does Not Apply __

IF YES TO 15A:

15B. Did you produce phlegm with any of these chest illnesses?
1. Yes ___ 2. No __
3. Does Not Apply __

15C. In the past year, how many such illnesses with (increased) phlegm did you have which lasted a week or more?
Number of illnesses _
No such illnesses _

16. RESPIRATORY SYSTEM

In the past year have you had:

	Yes or No	Further Comment on Positive Answers
Asthma	_____	
Bronchitis	_____	
Hay Fever	_____	
Other Allergies	_____	

	Yes or No	Further Comment on Positive Answers
Pneumonia	_____	
Tuberculosis	_____	
Chest Surgery	_____	
Other Lung Problems	_____	
Heart Disease	_____	

Do you have:

	Yes or No	Further Comment on Positive Answers
Frequent colds	_____	
Chronic cough	_____	
Shortness of breath when walking or climbing one flight or stairs	_____	

Do you:

Wheeze	_____	
Cough up phlegm	_____	

Smoke cigarettes _____ Packs per day __ How many years __

Date _____ Signature _____

BILLING CODE 4510-26-C

Appendix E to § 1915.1001—Interpretation and Classification of Chest Roentgenograms. Mandatory

(a) Chest roentgenograms shall be interpreted and classified in accordance with a professionally accepted classification system and recorded on a Roentgenographic Interpretation Form. *Form CSD/NIOSH (M) 2.8.

(b) Roentgenograms shall be interpreted and classified only by a B-reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses.

(c) All interpreters, whenever interpreting chest roentgenograms made under this section, shall have immediately available for reference a complete set of the ILO-U/C International Classification of Radiographs for Pneumoconioses, 1980.

Appendix F to § 1915.1001—Work Practices and Engineering Controls for Class I Asbestos Operations Non-Mandatory

This is a non-mandatory appendix to the asbestos standards for construction and for shipyards. It describes criteria and procedures for erecting and using negative pressure enclosures for Class I Asbestos Work, when NPEs are used as an allowable control method to comply with paragraph (g)(5) (i) of this section. Many small and variable details are involved in the erection of a negative pressure enclosure. OSHA and most participants in the rulemaking agreed that only the major, more performance oriented criteria should be made mandatory. These criteria are set out in paragraph (g) of this section. In addition, this appendix includes these mandatory specifications and procedures in its guidelines in order to make this appendix coherent and helpful. The mandatory nature of the criteria which appear in the regulatory text is not changed because they are included in this "non-mandatory" appendix. Similarly, the additional criteria and procedures included as guidelines in the appendix, do not become mandatory because mandatory criteria are also included in these comprehensive guidelines.

In addition, none of the criteria, both mandatory and recommended, are meant to specify or imply the need for use of patented or licensed methods or equipment. Recommended specifications included in this attachment should not discourage the use of creative alternatives which can be shown to reliably achieve the objectives of negative-pressure enclosures.

Requirements included in this appendix, cover general provisions to be followed in all asbestos jobs, provisions which must be followed for all Class I asbestos jobs, and provisions governing the construction and testing of negative pressure enclosures. The first category includes the requirement for use of wet methods, HEPA vacuums, and immediate bagging of waste; Class I work must conform to the following provisions:

- oversight by competent person
- use of critical barriers over all openings to work area
- isolation of HVAC systems
- use of impermeable dropcloths and coverage of all objects within regulated areas

In addition, more specific requirements for NPEs include:

- maintenance of −0.02 inches water gauge within enclosure
- manometric measurements
- air movement away from employees performing removal work
- smoke testing or equivalent for detection of leaks and air direction
- deactivation of electrical circuits, if not provided with ground-fault circuit interrupters.

Planning the Project

The standard requires that an exposure assessment be conducted before the asbestos job is begun § 1915.1001(f)(1). Information needed for that assessment, includes data relating to prior similar jobs, as applied to the specific variables of the current job. The information needed to conduct the assessment will be useful in planning the project, and in complying with any reporting requirements under this standard, when significant changes are being made to a control system listed in the standard, [see paragraph (k) of this section], as well as those of USEPA (40 CFR Part 61, subpart M). Thus, although the standard does not explicitly require the preparation of a written asbestos removal plan, the usual constituents of such a plan, i.e., a description of the enclosure, the equipment, and the procedures to be used throughout the project, must be determined before the enclosure can be erected. The following information should be included in the planning of the system:

A physical description of the work area;

A description of the approximate amount of material to be removed;

A schedule for turning off and sealing existing ventilation systems;

Personnel hygiene procedures;

A description of personal protective equipment and clothing to worn by employees;

A description of the local exhaust ventilation systems to be used and how they are to be tested;

A description of work practices to be observed by employees;

An air monitoring plan;

A description of the method to be used to transport waste material; and

The location of the dump site.

Materials and Equipment Necessary for Asbestos Removal

Although individual asbestos removal projects vary in terms of the equipment required to accomplish the removal of the materials, some equipment and materials are common to most asbestos removal operations.

Plastic sheeting used to protect horizontal surfaces, seal HVAC openings or to seal vertical openings and ceilings should have a minimum thickness of 6 mils. Tape or other adhesive used to attach plastic sheeting should be of sufficient adhesive strength to support the weight of the material plus all stresses encountered during the entire duration of the project without becoming detached from the surface.

Other equipment and materials which should be available at the beginning of each project are:

—HEPA Filtered Vacuum is essential for cleaning the work area after the asbestos has been removed. It should have a long hose capable of reaching out-of-the-way places, such as areas above ceiling tiles, behind pipes, etc.

—Portable air ventilation systems installed to provide the negative air pressure and air removal from the enclosure must be equipped with a HEPA filter. The number and capacity of units required to ventilate an enclosure depend on the size of the area to be ventilated. The filters for these systems should be designed in such a manner that they can be replaced when the air flow volume is reduced by the build-up of dust in the filtration material. Pressure monitoring devices with alarms and strip chart recorders attached to each system to indicate the pressure differential and the loss due to dust buildup on the filter are recommended.

—Water sprayers should be used to keep the asbestos material as saturated as possible during removal; the sprayers will provide a fine mist that minimizes the impact of the spray on the material.

—Water used to saturate the asbestos containing material can be amended by adding at least 15 milliliters (¼ ounce) of wetting agent in 1 liter (1 pint) of water. An example of a wetting agent is a 50/50 mixture of polyoxyethylene ether and polyoxyethylene polyglycol ester.

—Backup power supplies are recommended, especially for ventilation systems.

—Shower and bath water should be with mixed hot and cold water faucets. Water

that has been used to clean personnel or equipment should either be filtered or be collected and discarded as asbestos waste. Soap and shampoo should be provided to aid in removing dust from the workers' skin and hair.

—See paragraphs (h) and (i) of this section for appropriate respiratory protection and protective clothing.

—See paragraph (k) of this section for required signs and labels.

Preparing the Work Area

Disabling HVAC Systems: The power to the heating, ventilation, and air conditioning systems that service the restricted area must be deactivated and locked off. All ducts, grills, access ports, windows and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.

Operating HVAC Systems in the Restricted Area: If components of a HVAC system located in the restricted area are connected to a system that will service another zone during the project, the portion of the duct in the restricted area must be sealed and pressurized. Necessary precautions include caulking the duct joints, covering all cracks and openings with two layers of sheeting, and pressurizing the duct throughout the duration of the project by restricting the return air flow. The power to the fan supplying the positive pressure should be locked "on" to prevent pressure loss.

Sealing Elevators: If an elevator shaft is located in the restricted area, it should be either shut down or isolated by sealing with two layers of plastic sheeting. The sheeting should provide enough slack to accommodate the pressure changes in the shaft without breaking the air-tight seal.

Removing Mobile Objects: All movable objects should be cleaned and removed from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be contaminated and should be either cleaned with amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as hazardous waste.

Cleaning and Sealing Surfaces: After cleaning with water and a HEPA vacuum, surfaces of stationary objects should be covered with two layers of plastic sheeting. The sheeting should be secured with duct tape or an equivalent method to provide a tight seal around the object.

Bagging Waste: In addition to the requirement for immediate bagging of waste for disposal, it is further recommended that the waste material be double-bagged and sealed in plastic bags designed for asbestos disposal. The bags should be stored in a waste storage area that can be controlled by the workers conducting the removal. Filters removed from air handling units and rubbish removed from the area are to be bagged and handled as hazardous waste.

Constructing the Enclosure

The enclosure should be constructed to provide an air-tight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Enclosures should be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

Size: An enclosure should be the minimum volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).

Structural Integrity: The walls, ceilings and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.

Openings: It is not necessary that the structure be airtight; openings may be designed to direct air flow. Such openings should be located at a distance from active removal operations. They should be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost, they should be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits should be controlled by an airlock or a vestibule.

Barrier Supports: Frames should be constructed to support all unsupported spans of sheeting.

Sheeting: Walls, barriers, ceilings, and floors should be lined with two layers of plastic sheeting having a thickness of at least 6 mil.

Seams: Seams in the sheeting material should be minimized to reduce the possibilities of accidental rips and tears in the adhesive or connections. All seams in the sheeting should overlap, be staggered and not be located at corners or wall-to- floor joints.

Areas Within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur should be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

See paragraph (j) of § 1915.1001 for requirements for hygiene facilities.

During egress from the work area, each worker should step into the equipment room, clean tools and equipment, and remove gross contamination from clothing by wet cleaning and HEPA vacuuming. Before entering the shower area, foot coverings, head coverings, hand coverings, and coveralls are removed and placed in impervious bags for disposal or cleaning. Airline connections from airline respirators with HEPA disconnects and power cables from powered air-purifying respirators (PAPRs) will be disconnected just prior to entering the shower room.

Establishing Negative Pressure Within the Enclosure

Negative Pressure: Air is to be drawn into the enclosure under all anticipated conditions and exhausted through a HEPA filter for 24 hours a day during the entire duration of the project.

Air Flow Tests: Air flow patterns will be checked before removal operations begin, at least once per operating shift and any time there is a question regarding the integrity of the enclosure. The primary test for air flow is to trace air currents with smoke tubes or other visual methods. Flow checks are made at each opening and at each doorway to demonstrate that air is being drawn into the enclosure and at each worker's position to show that air is being drawn away from the breathing zone.

Monitoring Pressure Within the Enclosure: After the initial air flow patterns have been checked, the static pressure must be monitored within the enclosure. Monitoring may be made using manometers, pressure gauges, or combinations of these devices. It is recommended that they be attached to alarms and strip chart recorders at points identified by the design engineer.

Corrective Actions: If the manometers or pressure gauges demonstrate a reduction in pressure differential below the required level, work should cease and the reason for the change investigated and appropriate changes made. The air flow patterns should be retested before work begins again.

Pressure Differential: The design parameters for static pressure differentials between the inside and outside of enclosures typically range from 0.02 to 0.10 inches of water gauge, depending on conditions. All zones inside the enclosure must have less pressure than the ambient pressure outside of the enclosure (–0.02 inches water gauge differential). Design specifications for the differential vary according to the size, configuration, and shape of the enclosure as well as ambient and mechanical air pressure conditions around the enclosure.

Air Flow Patterns: The flow of air past each worker shall be enhanced by positioning the intakes and exhaust ports to remove contaminated air from the worker's breathing zone, by positioning HEPA vacuum cleaners to draw air from the worker's breathing zone, by forcing relatively uncontaminated air past the worker toward an exhaust port, or by using a combination of methods to reduce the worker's exposure.

Air Handling Unit Exhaust: The exhaust plume from air handling units should be located away from adjacent personnel and intakes for HVAC systems.

Air Flow Volume: The air flow volume (cubic meters per minute) exhausted (removed) from the workplace must exceed the amount of makeup air supplied to the enclosure. The rate of air exhausted from the enclosure should be designed to maintain a negative pressure in the enclosure and air movement past each worker. The volume of air flow removed from the enclosure should replace the volume of the container at every 5 to 15 minutes. Air flow volume will need to be relatively high for large enclosures, enclosures with awkward shapes, enclosures with multiple openings, and operations employing several workers in the enclosure.

Air Flow Velocity: At each opening, the air flow velocity must visibly "drag" air into the enclosure. The velocity of air flow within the enclosure must be adequate to remove airborne contamination from each worker's breathing zone without disturbing the asbestos-containing material on surfaces.

Airlocks: Airlocks are mechanisms on doors and curtains that control the air flow

patterns in the doorways. If air flow occurs, the patterns through doorways must be such that the air flows toward the inside of the enclosure. Sometimes vestibules, double doors, or double curtains are used to prevent air movement through the doorways. To use a vestibule, a worker enters a chamber by opening the door or curtain and then closing the entry before opening the exit door or curtain.

Airlocks should be located between the equipment room and shower room, between the shower room and the clean room, and between the waste storage area and the outside of the enclosure. The air flow between adjacent rooms must be checked using smoke tubes or other visual tests to ensure the flow patterns draw air toward the work area without producing eddies.

Monitoring for Airborne Concentrations

In addition to the breathing zone samples taken as outlined in paragraph (f) of § 1915.1001 , samples of air should be taken to demonstrate the integrity of the enclosure, the cleanliness of the clean room and shower area, and the effectiveness of the HEPA filter. If the clean room is shown to be contaminated, the room must be relocated to an uncontaminated area.

Samples taken near the exhaust of portable ventilation systems must be done with care.

General Work Practices

Preventing dust dispersion is the primary means of controlling the spread of asbestos within the enclosure. Whenever practical, the point of removal should be isolated, enclosed, covered, or shielded from the workers in the area. Waste asbestos containing materials must be bagged during or immediately after removal; the material must remain saturated until the waste container is sealed.

Waste material with sharp points or corners must be placed in hard air-tight containers rather than bags.

Whenever possible, large components should be sealed in plastic sheeting and removed intact.

Bags or containers of waste will be moved to the waste holding area, washed, and wrapped in a bag with the appropriate labels.

Cleaning the Work Area

Surfaces within the work area should be kept free of visible dust and debris to the extent feasible. Whenever visible dust appears on surfaces, the surfaces within the enclosure must be cleaned by wiping with a wet sponge, brush, or cloth and then vacuumed with a HEPA vacuum.

All surfaces within the enclosure should be cleaned before the exhaust ventilation system is deactivated and the enclosure is disassembled. An approved encapsulate may be sprayed onto areas after the visible dust has been removed.

Appendix G to § 1915.1001 [Reserved]

Appendix H to § 1915.1001—Substance Technical Information for Asbestos. Non-Mandatory

I. Substance Identification

A. Substance: "Asbestos" is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

B. Asbestos is and was used in the manufacture of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials including floor tiles, roofing felts, ceiling tiles, asbestos-cement pipe and sheet, and fire-resistant drywall. Asbestos is also present in pipe and boiler insulation materials and in sprayed-on materials located on beams, in crawlspaces, and between walls.

C. The potential for an asbestos-containing product to release breathable fibers depends largely on its degree of friability. Friable means that the material can be crumbled with hand pressure and is therefore likely to emit fibers. The fibrous fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable, and they readily release airborne fibers if disturbed. Materials such as vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos—cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

D. Permissible exposure: Exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30 minute work period.

II. Health Hazard Data

A. Asbestos can cause disabling respiratory disease and various types of cancers if the fibers are inhaled. Inhaling or ingesting fibers from contaminated clothing or skin can also result in these diseases. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure.

B. Exposure to asbestos has been shown to cause lung cancer, mesothelioma, and cancer of the stomach and colon. Mesothelioma is a rare cancer of the thin membrane lining of the chest and abdomen. Symptoms of mesothelioma include shortness of breath, pain in the walls of the chest, and/or abdominal pain.

III. Respirators and Protective Clothing

A. Respirators: You are required to wear a respirator when performing tasks that result in asbestos exposure that exceeds the permissible exposure limit (PEL) of 0.1 f/cc and when performing certain designated operations. Air-purifying respirators equipped with a high-efficiency particulate air (HEPA) filter can be used where airborne asbestos fiber concentrations do not exceed 1.0 f/cc; otherwise, more protective respirators such as air-supplied, positive-pressure, full facepiece respirators must be used. Disposable respirators or dust masks are not permitted to be used for asbestos work. For effective protection, respirators must fit your face and head snugly. Your employer is required to conduct fit test when you are first assigned a respirator and every 6 months thereafter. Respirators should not be loosened or removed in work situations where their use is required.

B. Protective Clothing: You are required to wear protective clothing in work areas where asbestos fiber concentrations exceed the permissible exposure limit (PEL) of 0.1 f/cc.

IV. Disposal Procedures and Clean-up

A. Wastes that are generated by processes where asbestos is present include:

1. Empty asbestos shipping containers.
2. Process wastes such as cuttings, trimmings, or reject materials.
3. Housekeeping waste from wet-sweeping or HEPA-vacuuming.
4. Asbestos fireproofing or insulating material that is removed from buildings.
5. Asbestos-containing building products removed during building renovation or demolition.
6. Contaminated disposable protective clothing.

B. Empty shipping bags can be flattened under exhaust hoods and packed into airtight containers for disposal. Empty shipping drums are difficult to clean and should be sealed.

C. Vacuum bags or disposable paper filters should not be cleaned, but should be sprayed with a fine water mist and placed into a labeled waste container.

D. Process waste and housekeeping waste should be wetted with water or a mixture of water and surfactant prior to packaging in disposable containers.

E. Asbestos-containing material that if removed from buildings must be disposed of in leak-tight 6-mil plastic bags, plastic-lined cardboard containers, or plastic-lined metal containers. These wastes, which are removed while wet, should be sealed in containers before they dry out to minimize the release of asbestos fibers during handling.

V. Access to Information

A. Each year, your employer is required to inform you of the information contained in this standard and appendices for asbestos. In addition, your employer must instruct you in the proper work practices for handling asbestos-containing materials, and the correct use of protective equipment.

B. Your employer is required to determine whether you are being exposed to asbestos. Your employer must treat exposure to thermal system insulation and sprayed-on and trowled-on surfacing material as asbestos exposure, unless results of laboratory analysis show that the material does not contain asbestos. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure, and, if you are exposed above the permissible exposure limit, he or she is required to inform you of the actions that are being taken to reduce your exposure to within the permissible limit.

C. Your employer is required to keep records of your exposures and medical examinations. These exposure records must be kept for at least thirty (30) years. Medical records must be kept for the period of your employment plus thirty (30) years.

D. Your employer is required to release your exposure and medical records to your physician or designated representative upon your written request.

Appendix I to § 1915.1001—Medical Surveillance Guidelines for Asbestos, Non-Mandatory

I. Route of Entry

Inhalation, ingestion.

II. Toxicology

Clinical evidence of the adverse effects associated with exposure to asbestos is present in the form of several well-conducted epidemiological studies of occupationally exposed workers, family contacts of workers, and persons living near asbestos mines. These studies have shown a definite association between exposure to asbestos and an increased incidence of lung cancer, pleural and peritoneal mesothelioma, gastrointestinal cancer, and asbestosis. The latter is a disabling fibrotic lung disease that is caused only by exposure to asbestos. Exposure to asbestos has also been associated with an increased incidence of esophageal, kidney, laryngeal, pharyngeal, and buccal cavity cancers. As with other known chronic occupational diseases, disease associated with asbestos generally appears about 20 years following the first occurrence of exposure: There are no known acute effects associated with exposure to asbestos.

Epidemiological studies indicate that the risk of lung cancer among exposed workers who smoke cigarettes is greatly increased over the risk of lung cancer among non-exposed smokers or exposed nonsmokers. These studies suggest that cessation of smoking will reduce the risk of lung cancer for a person exposed to asbestos but will not reduce it to the same level of risk as that existing for an exposed worker who has never smoked.

III. Signs and Symptoms of Exposure Related Disease

The signs and symptoms of lung cancer or gastrointestinal cancer induced by exposure to asbestos are not unique, except that a chest X-ray of an exposed patient with lung cancer may show pleural plaques, pleural calcification, or pleural fibrosis. Symptoms characteristic of mesothelioma include shortness of breath, pain in the walls of the chest, or abdominal pain. Mesothelioma has a much longer latency period compared with lung cancer (40 years versus 15–20 years), and mesothelioma is therefore more likely to be found among workers who were first exposed to asbestos at an early age. Mesothelioma is always fatal.

Asbestosis is pulmonary fibrosis caused by the accumulation of asbestos fibers in the lungs. Symptoms include shortness of breath, coughing, fatigue, and vague feelings of sickness. When the fibrosis worsens, shortness of breath occurs even at rest. The diagnosis of asbestosis is based on a history of exposure to asbestos, the presence of characteristics radiologic changes, end-inspiratory crackles (rales), and other clinical features of fibrosing lung disease. Pleural plaques and thickening are observed on X-rays taken during the early sates of the disease. Asbestosis is often a progressive disease even in the absence of continued exposure, although this appears to be a highly individualized characteristic. In severe cases, death may be caused by respiratory or cardiac failure.

IV. Surveillance and Preventive Considerations

As noted above, exposure to asbestos have been linked to an increased risk of lung cancer, mesothelioma, gastrointestinal cancer, and asbestosis among occupationally exposed workers. Adequate screening tests to determine an employee's potential for developing serious chronic diseases, such as a cancer, from exposure to asbestos do not presently exist. However, some tests, particularly chest X-rays and pulmonary function tests, may indicate that an employee has been overexposed to asbestos increasing his or her risk of developing exposure related chronic diseases. It is important for the physician to become familiar with the operating conditions in which occupational exposure to asbestos is likely to occur. This is particularly important in evaluating medical and work histories and in conducting physical examinations. When an active employee has been identified as having been overexposed to asbestos measures taken by the employer to eliminate or mitigate further exposure should also lower the risk of serious long-term consequences.

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limits (0.1 fiber per cubic centimeter of air) for 30 or more days per year and for all employees who are assigned to wear a negative-pressure respirator. All examinations and procedures must be performed by or under the supervision of licensed physician at a reasonable time and place, and at no cost to the employee.

Although broad latitude is given to the physician in prescribing specific tests to be included in the medical surveillance program, OSHA requires inclusion of the following elements in the routine examination,

(i) Medical and work histories with special emphasis directed to symptoms of the respiratory system, cardiovascular system, and digestive tract.

(ii) Completion of the respiratory disease questionnaire contained in Appendix D to this section.

(iii) A physical examination including a chest roentgenogram and pulmonary function test that include measurement of the employee's forced vital capacity (FYC) and forced expiratory volume at one second (FEV_1).

(iv) Any laboratory or other test that the examining physician deems by sound medical practice to be necessary.

The employer is required to make the prescribed tests available at least annually to those employees covered; more often than specified if recommended by the examining physician; and upon termination of employment.

The employer is required to provide the physician with the following information: A copy of this standard and appendices; a description of the employee's duties as they relate to asbestos exposure; the employee's representative level of exposure to asbestos; a description of any personal protective and respiratory equipment used; and information from previous medical examinations of the affected employee that is not otherwise available to the physician. Making this information available to the physician will aid in the evaluation of the employee's health in relation to assigned duties and fitness to wear personal protective equipment, if required.

The employer is required to obtain a written opinion from the examining physician containing the results of the medical examination; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of exposure-related disease; any recommended limitations on the employee or on the use of personal protective equipment; and a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions related to asbestos exposure that require further explanation or treatment. This written opinion must not reveal specific findings or diagnoses unrelated to exposure to asbestos, and a copy of the opinion must be provided to the affected employee.

Appendix J to § 1915.1001—Smoking Cessation Program Information for Asbestos—Non-Mandatory

The following organizations provide smoking cessation information.

1. The National Cancer Institute operates a toll-free Cancer Information Service (CIS) with trained personnel to help you. Call 1–800–4–CANCER* to reach the CIS office serving your area, or write: Office of Cancer Communications, National Cancer Institute, National Institutes of Health, Building 31, Room 10A24, Bethesda, Maryland 20892.

2. American Cancer Society, 3340 Peachtree Road, N.E., Atlanta, Georgia 30026, (404) 320–3333.

The American Cancer Society (ACS) is a voluntary organization composed of 58 divisions and 3,100 local units. Through "The Great American Smokeout" in November, the annual Cancer Crusade in April, and numerous educational materials, ACS helps people learn about the health hazards of smoking and become successful ex-smokers.

3. American Heart Association, 7320 Greenville Avenue, Dallas, Texas 75231, (214) 750–5300.

The American Heart Association (AHA) is a voluntary organization with 130,000 members (physicians, scientists, and laypersons) in 55 state and regional groups. AHA produces a variety of publications and

audiovisual materials about the effects of smoking on the heart. AHA also has developed a guidebook for incorporating a weight-control component into smoking cessation programs.

4. American Lung Association, 1740 Broadway, New York, New York 10019, (212) 245–8000.

A voluntary organization of 7,500 members (physicians, nurses, and laypersons), the American Lung Association (ALA) conducted numerous public information programs about the health effects of smoking. ALA has 59 state and 85 local units. The organization actively supports legislation and information campaigns for non-smokers' rights and provides help for smokers who want to quit, for example, through "Freedom From Smoking," a self-help smoking cessation program.

5. Office on Smoking and Health, U.S. Department of Health and Human Services 5600 Fishers Lane, Park Building, Room 110, Rockville, Maryland 20857.

The Office on Smoking and Health (OSHA) is the Department of Health and Human Services' lead agency in smoking control. OSHA has sponsored distribution of publications on smoking-related topics, such as free flyers on relapse after initial quitting, helping a friend or family member quit smoking, the health hazards of smoking, and the effects of parental smoking on teenagers.

*In Hawaii, on Oahu call 524–1234 (call collect from neighboring islands),

Spanish-speaking staff members are available during daytime hours to callers from the following areas: California, Florida, Georgia, Illinois, New Jersey (area code 201), New York, and Texas. Consult your local telephone directory for listings of local chapters.

Appendix K to § 1915.1001—Polarized Light Microscopy of Asbestos—Non-Mandatory)

Method number: ID–191
Matrix: Bulk

Collection Procedure

Collect approximately 1 to 2 grams of each type of material and place into separate 20 mL scintillation vials.

Analytical Procedure

A portion of each separate phase is analyzed by gross examination, phase-polar examination, and central stop dispersion microscopy.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL-OSHA. Similar products from other sources may be substituted.

1. Introduction

This method describes the collection and analysis of asbestos bulk materials by light microscopy techniques including phase-polar illumination and central-stop dispersion microscopy. Some terms unique to asbestos analysis are defined below:

Amphibole: A family of minerals whose crystals are formed by long, thin units which have two thin ribbons of double chain silicate with a brucite ribbon in between. The shape of each unit is similar to an "I beam". Minerals important in asbestos analysis include cummingtonite-grunerite, crocidolite, tremolite- actinolite and anthophyllite.

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, cummingtonite-grunerite asbestos (amosite), anthophyllite asbestos, tremolite asbestos, crocidolite, actinolite asbestos and any of these minerals which have been chemically treated or altered. The precise chemical formulation of each species varies with the location from which it was mined. Nominal compositions are listed:

Chrysotile ..... $Mg_3Si_2O_5(OH)_4$
Crocidolite (Riebeckite asbestos)
..... $Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$
Cummingtonite-Grunerite asbestos
(Amosite)..... $(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-Actinolite asbestos
..... $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite asbestos ... $(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos meeting the criteria for a fiber. (See section 3.5.)

Aspect Ratio: The ratio of the length of a fiber to its diameter usually defined as "length : width", e.g. 3:1.

Brucite: A sheet mineral with the composition $Mg(OH)_2$.

Central Stop Dispersion Staining (microscope): This is a dark field microscope technique that images particles using only light refracted by the particle, excluding light that travels through the particle unrefracted. This is usually accomplished with a McCrone objective or other arrangement which places a circular stop with apparent aperture equal to the objective aperture in the back focal plane of the microscope.

Cleavage Fragments: Mineral particles formed by the comminution of minerals, especially those characterized by relatively parallel sides and moderate aspect ratio.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from a phase contrast asbestos count because they are not asbestos.

Fiber: A particle longer than or equal to 5 µm with a length to width ratio greater than or equal to 3:1. This may include cleavage fragments. (see section 3.5 of this appendix).

Phase Contrast: Contrast obtained in the microscope by causing light scattered by small particles to destructively interfere with unscattered light, thereby enhancing the visibility of very small particles and particles with very low intrinsic contrast.

Phase Contrast Microscope: A microscope configured with a phase mask pair to create phase contrast. The technique which uses this is called Phase Contrast Microscopy (PCM).

Phase-Polar Analysis: This is the use of polarized light in a phase contrast microscope. It is used to see the same size fibers that are visible in air filter analysis. Although fibers finer than 1 µm are visible, analysis of these is inferred from analysis of larger bundles that are usually present.

Phase-Polar Microscope: The phase-polar microscope is a phase contrast microscope which has an analyzer, a polarizer, a first order red plate and a rotating phase condenser all in place so that the polarized light image is enhanced by phase contrast.

Sealing Encapsulant: This is a product which can be applied, preferably by spraying, onto an asbestos surface which will seal the surface so that fibers cannot be released.

Serpentine: A mineral family consisting of minerals with the general composition $Mg_3(Si2O_5(OH)_4$ having the magnesium in brucite layer over a silicate layer. Minerals important in asbestos analysis included in this family are chrysotile, lizardite, antigorite.

1.1. History

Light microscopy has been used for well over 100 years for the determination of mineral species. This analysis is carried out using specialized polarizing microscopes as well as bright field microscopes. The identification of minerals is an on-going process with many new minerals described each year. The first recorded use of asbestos was in Finland about 2500 B.C. where the material was used in the mud wattle for the wooden huts the people lived in as well as strengthening for pottery. Adverse health aspects of the mineral were noted nearly 2000 years ago when Pliny the Younger wrote about the poor health of slaves in the asbestos mines. Although known to be injurious for centuries, the first modern references to its toxicity were by the British Labor Inspectorate when it banned asbestos dust from the workplace in 1898. Asbestosis cases were described in the literature after the turn of the century. Cancer was first suspected in the mid 1930's and a causal link to mesothelioma was made in 1965. Because of the public concern for worker and public safety with the use of this material, several different types of analysis were applied to the determination of asbestos content. Light microscopy requires a great deal of experience and craft. Attempts were made to apply less subjective methods to the analysis. X-ray diffraction was partially successful in determining the mineral types but was unable to separate out the fibrous portions from the non-fibrous portions. Also, the minimum detection limit for asbestos analysis by X-ray diffraction (XRD) is about 1%. Differential Thermal Analysis (DTA) was no more successful. These provide useful corroborating information when the presence of asbestos has been shown by microscopy; however, neither can determine the difference between fibrous and non-fibrous minerals when both habits are present. The same is true of Infrared Absorption (IR).

When electron microscopy was applied to asbestos analysis, hundreds of fibers were discovered present too small to be visible in any light microscope. There are two different types of electron microscope used for asbestos analysis: Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). Scanning Electron Microscopy is useful in identifying minerals. The SEM can provide two of the three pieces of information required to identify fibers by electron microscopy: morphology and chemistry. The third is structure as determined by Selected Area Electron Diffraction—SAED which is performed in the TEM. Although the resolution of the SEM is sufficient for very fine fibers to be seen, accuracy of chemical analysis that can be performed on the fibers

varies with fiber diameter in fibers of less than 0.2 μm diameter. The TEM is a powerful tool to identify fibers too small to be resolved by light microscopy and should be used in conjunction with this method when necessary. The TEM can provide all three pieces of information required for fiber identification. Most fibers thicker than 1 μm can adequately be defined in the light microscope. The light microscope remains as the best instrument for the determination of mineral type. This is because the minerals under investigation were first described analytically with the light microscope. It is inexpensive and gives positive identification for most samples analyzed. Further, when optical techniques are inadequate, there is ample indication that alternative techniques should be used for complete identification of the sample.

1.2. Principle

Minerals consist of atoms that may be arranged in random order or in a regular arrangement. Amorphous materials have atoms in random order while crystalline materials have long range order. Many materials are transparent to light, at least for small particles or for thin sections. The properties of these materials can be investigated by the effect that the material has on light passing through it. The six asbestos minerals are all crystalline with particular properties that have been identified and cataloged. These six minerals are anisotropic. They have a regular array of atoms, but the arrangement is not the same in all directions. Each major direction of the crystal presents a different regularity. Light photons travelling in each of these main directions will encounter different electrical neighborhoods, affecting the path and time of travel. The techniques outlined in this method use the fact that light traveling through fibers or crystals in different directions will behave differently, but predictably. The behavior of the light as it travels through a crystal can be measured and compared with known or determined values to identify the mineral species. Usually, Polarized Light Microscopy (PLM) is performed with strain-free objectives on a bright-field microscope platform. This would limit the resolution of the microscope to about 0.4 μm. Because OSHA requires the counting and identification of fibers visible in phase contrast, the phase contrast platform is used to visualize the fibers with the polarizing elements added into the light path. Polarized light methods cannot identify fibers finer than about 1μm in diameter even though they are visible. The finest fibers are usually identified by inference from the presence of larger, identifiable fiber bundles. When fibers are present, but not identifiable by light microscopy, use either SEM or TEM to determine the fiber identity.

1.3. Advantages and Disadvantages

The advantages of light microcopy are:

(a) Basic identification of the materials was first performed by light microscopy and gross analysis. This provides a large base of published information against which to check analysis and analytical technique.

(b) The analysis is specific to fibers. The minerals present can exist in asbestiform, fibrous, prismatic, or massive varieties all at the same time. Therefore, bulk methods of analysis such as X-ray diffraction, IR analysis, DTA, etc. are inappropriate where the material is not known to be fibrous.

(c) The analysis is quick, requires little preparation time, and can be performed on-site if a suitably equipped microscope is available.

The disadvantages are:

(a) Even using phase-polar illumination, not all the fibers present may be seen. This is a problem for very low asbestos concentrations where agglomerations or large bundles of fibers may not be present to allow identification by inference.

(b) The method requires a great degree of sophistication on the part of the microscopist. An analyst is only as useful as his mental catalog of images. Therefore, a microscopist's accuracy is enhanced by experience. The mineralogical training of the analyst is very important. It is the basis on which subjective decisions are made.

(c) The method uses only a tiny amount of material for analysis. This may lead to sampling bias and false results (high or low). This is especially true if the sample is severely inhomogeneous.

(d) Fibers may be bound in a matrix and not distinguishable as fibers so identification cannot be made.

1.4. Method Performance

1.4.1. This method can be used for determination of asbestos content from 0 to 100% asbestos. The detection limit has not been adequately determined, although for selected samples, the limit is very low, depending on the number of particles examined. For mostly homogeneous, finely divided samples, with no difficult fibrous interferences, the detection limit is below 1%. For inhomogeneous samples (most samples), the detection limit remains undefined. NIST has conducted proficiency testing of laboratories on a national scale. Although each round is reported statistically with an average, control limits, etc., the results indicate a difficulty in establishing precision especially in the low concentration range. It is suspected that there is significant bias in the low range especially near 1%. EPA tried to remedy this by requiring a mandatory point counting scheme for samples less than 10%. The point counting procedure is tedious, and may introduce significant biases of its own. It has not been incorporated into this method.

1.4.2. The precision and accuracy of the quantitation tests performed in this method are unknown. Concentrations are easier to determine in commercial products where asbestos was deliberately added because the amount is usually more than a few percent. An analyst's results can be "calibrated" against the known amounts added by the manufacturer. For geological samples, the degree of homogeneity affects the precision.

1.4.3. The performance of the method is analyst dependent. The analyst must choose carefully and not necessarily randomly the portions for analysis to assure that detection of asbestos occurs when it is present. For this reason, the analyst must have adequate training in sample preparation, and experience in the location and identification of asbestos in samples. This is usually accomplished through substantial on-the-job training as well as formal education in mineralogy and microscopy.

1.5. Interferences

Any material which is long, thin, and small enough to be viewed under the microscope can be considered an interference for asbestos. There are literally hundreds of interferences in workplaces. The techniques described in this method are normally sufficient to eliminate the interferences. An analyst's success in eliminating the interferences depends on proper training.

Asbestos minerals belong to two mineral families: the serpentines and the amphiboles. In the serpentine family, the only common fibrous mineral is chrysotile. Occasionally, the mineral antigorite occurs in a fibril habit with morphology similar to the amphiboles. The amphibole minerals consist of a score of different minerals of which only five are regulated by federal standard: amosite, crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos. These are the only amphibole minerals that have been commercially exploited for their fibrous properties; however, the rest can and do occur occasionally in asbestiform habit.

In addition to the related mineral interferences, other minerals common in building material may present a problem for some microscopists: gypsum, anhydrite, brucite, quartz fibers, talc fibers or ribbons, wollastonite, perlite, attapulgite, etc. Other fibrous materials commonly present in workplaces are: fiberglass, mineral wool, ceramic wool, refractory ceramic fibers, kevlar, nomex, synthetic fibers, graphite or carbon fibers, cellulose (paper or wood) fibers, metal fibers, etc.

Matrix embedding material can sometimes be a negative interference. The analyst may not be able to easily extract the fibers from the matrix in order to use the method. Where possible, remove the matrix before the analysis, taking careful note of the loss of weight. Some common matrix materials are: vinyl, rubber, tar, paint, plant fiber, cement, and epoxy. A further negative interference is that the asbestos fibers themselves may be either too small to be seen in Phase contrast Microscopy (PCM) or of a very low fibrous quality, having the appearance of plant fibers. The analyst's ability to deal with these materials increases with experience.

1.6. Uses and Occupational Exposure

Asbestos is ubiquitous in the environment. More than 40% of the land area of the United States is composed of minerals which may contain asbestos. Fortunately, the actual formation of great amounts of asbestos is relatively rare. Nonetheless, there are locations in which environmental exposure can be severe such as in the Serpentine Hills of California.

There are thousands of uses for asbestos in industry and the home. Asbestos abatement workers are the most current segment of the population to have occupational exposure to great amounts of asbestos. If the material is undisturbed, there is no exposure. Exposure occurs when the asbestos-containing material is abraded or otherwise disturbed during maintenance operations or some other

activity. Approximately 95% of the asbestos in place in the United States is chrysotile.

Amosite and crocidolite make up nearly all the difference. Tremolite and anthophyllite make up a very small percentage. Tremolite is found in extremely small amounts in certain chrysotile deposits. Actinolite exposure is probably greatest from environmental sources, but has been identified in vermiculite containing, sprayed-on insulating materials which may have been certified as asbestos-free.

1.7. Physical and Chemical Properties

The nominal chemical compositions for the asbestos minerals were given in Section 1. Compared to cleavage fragments of the same minerals, asbestiform fibers possess a high tensile strength along the fiber axis. They are chemically inert, non-combustible, and heat resistant. Except for chrysotile, they are insoluble in Hydrochloric acid (HCl). Chrysotile is slightly soluble in HCl. Asbestos has high electrical resistance and good sound absorbing characteristics. It can be woven into cables, fabrics or other textiles, or matted into papers, felts, and mats.

1.8. Toxicology (This Section is for Information Only and Should Not Be Taken as OSHA Policy)

Possible physiologic results of respiratory exposure to asbestos are mesothelioma of the pleura or peritoneum, interstitial fibrosis, asbestosis, pneumoconiosis, or respiratory cancer. The possible consequences of asbestos exposure are detailed in the NIOSH Criteria Document or in the OSHA Asbestos Standards 29 CFR 1910.1001 and 29 CFR 1926.1101.

2. Sampling Procedure

2.1. Equipment for Sampling

(a) Tube or cork borer sampling device
(b) Knife
(c) 20 mL scintillation vial or similar vial
(d) Sealing encapsulant

2.2. Safety Precautions

Asbestos is a known carcinogen. Take care when sampling. While in an asbestos-containing atmosphere, a properly selected and fit-tested respirator should be worn. Take samples in a manner to cause the least amount of dust. Follow these general guidelines:

(a) Do not make unnecessary dust.
(b) Take only a small amount (1 to 2 g).
(c) Tightly close the sample container.
(d) Use encapsulant to seal the spot where the sample was taken, if necessary.

2.3. Sampling procedure

Samples of any suspect material should be taken from an inconspicuous place. Where the material is to remain, seal the sampling wound with an encapsulant to eliminate the potential for exposure from the sample site. Microscopy requires only a few milligrams of material. The amount that will fill a 20 mL scintillation vial is more than adequate. Be sure to collect samples from all layers and phases of material. If possible, make separate samples of each different phase of the material. This will aid in determining the actual hazard. *DO NOT USE ENVELOPES, PLASTIC OR PAPER BAGS OF ANY KIND TO COLLECT SAMPLES.* The use of plastic bags presents a contamination hazard to laboratory personnel and to other samples. When these containers are opened, a bellows effect blows fibers out of the container onto everything, including the person opening the container.

If a cork-borer type sampler is available, push the tube through the material all the way, so that all layers of material are sampled. Some samplers are intended to be disposable. These should be capped and sent to the laboratory. If a non-disposable cork borer is used, empty the contents into a scintillation vial and send to the laboratory. Vigorously and completely clean the cork borer between samples.

2.4 Shipment

Samples packed in glass vials must not touch or they might break in shipment.

(a) Seal the samples with a sample seal (such as the OSHA 21) over the end to guard against tampering and to identify the sample.

(b) Package the bulk samples in separate packages from the air samples. They may cross-contaminate each other and will invalidate the results of the air samples.

(c) Include identifying paperwork with the samples, but not in contact with the suspected asbestos.

(d) To maintain sample accountability, ship the samples by certified mail, overnight express, or hand carry them to the laboratory.

3. Analysis

The analysis of asbestos samples can be divided into two major parts: sample preparation and microscopy. Because of the different asbestos uses that may be encountered by the analyst, each sample may need different preparation steps. The choices are outlined below. There are several different tests that are performed to identify the asbestos species and determine the percentage. They will be explained below.

3.1. Safety

(a) Do not create unnecessary dust. Handle the samples in HEPA-filter equipped hoods. If samples are received in bags, envelopes or other inappropriate container, open them only in a hood having a face velocity at or greater than 100 fpm. Transfer a small amount to a scintillation vial and only handle the smaller amount.

(b) Open samples in a hood, never in the open lab area.

(c) Index of refraction oils can be toxic. Take care not to get this material on the skin. Wash immediately with soap and water if this happens.

(d) Samples that have been heated in the muffle furnace or the drying oven may be hot. Handle them with tongs until they are cool enough to handle.

(e) Some of the solvents used, such as THF (tetrahydrofuran), are toxic and should only be handled in an appropriate fume hood and according to instructions given in the Material Safety Data Sheet (MSDS).

3.2. Equipment

(a) Phase contrast microscope with 10x, 16x and 40x objectives, 10x wide-field eyepieces, G–22 Walton-Beckett graticule, Whipple disk, polarizer, analyzer and first order red or gypsum plate, 100 Watt illuminator, rotating position condenser with oversize phase rings, central stop dispersion objective, Kohler illumination and a rotating mechanicalstage. (See Figure 1).

(b) Stereo microscope with reflected light illumination, transmitted light illumination, polarizer, analyzer and first order red or gypsum plate, and rotating stage.

(c) Negative pressure hood for the stereo microscope

(d) Muffle furnace capable of 600 °C

(e) Drying oven capable of 50–150 °C

(f) Aluminum specimen pans

(g) Tongs for handling samples in the furnace

(h) High dispersion index of refraction oils (Special for dispersion staining.)

n=1.550
n=1.585
n=1.590
n=1.605
n=1.620
n=1.670
n=1.680
n=1.690

(i) A set of index of refraction oils from about n=1.350 to n=2.000 in n=0.005 increments. (Standard for Becke line analysis.)

(j) Glass slides with painted or frosted ends 1 x 3 inches 1mm thick, precleaned.

(k) Cover Slips 22 x 22 mm, #1½

(l) Paper clips or dissection needles

(m) Hand grinder

(n) Scalpel with both #10 and #11 blades

(o) 0.1 molar HCl

(p) Decalcifying solution (Baxter Scientific Products) Ethylenediaminetetraacetic Acid, Tetrasodium.....0.7 g/l
Sodium Potassium Tartrate.....6.0 mg/liter
Hydrochloric Acid.....99.2 g/liter
Sodium Tartrate.....0.14 g/liter

(q) Tetrahydrofuran (THF)

(r) Hotplate capable of 60 °C

(s) Balance

(t) Hacksaw blade

(u) Ruby mortar and pestle

3.3. Sample Pre-Preparation

Sample preparation begins with pre-preparation which may include chemical reduction of the matrix, heating the sample to dryness or heating in the muffle furnace. The end result is a sample which has been reduced to a powder that is sufficiently fine to fit under the cover slip. Analyze different phases of samples separately, e.g., tile and the tile mastic should be analyzed separately as the mastic may contain asbestos while the tile may not.

(a) *Wet Samples*

Samples with a high water content will not give the proper dispersion colors and must be dried prior to sample mounting. Remove the lid of the scintillation vial, place the bottle in the drying oven and heat at 100 °C to dryness (usually about 2 h). Samples which are not submitted to the lab in glass must be removed and placed in glass vials or aluminum weighing pans before placing them in the drying oven.

(b) *Samples With Organic Interference—Muffle Furnace*

These may include samples with tar as a matrix, vinyl asbestos tile, or any other organic that can be reduced by heating. Remove the sample from the vial and weigh in a balance to determine the weight of the submitted portion. Place the sample in a muffle furnace at 500 °C for 1 to 2 h or until all obvious organic material has been removed. Retrieve, cool and weigh again to determine the weight loss on ignition. This is necessary to determine the asbestos content of the submitted sample, because the analyst will be looking at a reduced sample.

Notes: Heating above 600 °C will cause the sample to undergo a structural change which, given sufficient time, will convert the chrysotile to forsterite. Heating even at lower temperatures for 1 to 2 h may have a measurable effect on the optical properties of the minerals. If the analyst is unsure of what to expect, a sample of standard asbestos should be heated to the same temperature for the same length of time so that it can be examined for the proper interpretation.

(c) *Samples With Organic Interference—THF*

Vinyl asbestos tile is the most common material treated with this solvent, although, substances containing tar will sometimes yield to this treatment. Select a portion of the material and then grind it up if possible. Weigh the sample and place it in a test tube. Add sufficient THF to dissolve the organic matrix. This is usually about 4 to 5 mL. *Remember, THF is highly flammable.* Filter the remaining material through a tared silver membrane, dry and weigh to determine how much is left after the solvent extraction. Further process the sample to remove carbonate or mount directly.

(d) *Samples With Carbonate Interference*

Carbonate material is often found on fibers and sometimes must be removed in order to perform dispersion microscopy. Weigh out a portion of the material and place it in a test tube. Add a sufficient amount of 0.1 M HCl or decalcifying solution in the tube to react all the carbonate as evidenced by gas formation; i.e., when the gas bubbles stop, add a little more solution. If no more gas forms, the reaction is complete. Filter the material out through a tared silver membrane, dry and weigh to determine the weight lost.

3.4. Sample Preparation

Samples must be prepared so that accurate determination can be made of the asbestos type and amount present. The following steps are carried out in the low-flow hood (a low-flow hood has less than 50 fpm flow):

(1) If the sample has large lumps, is hard, or cannot be made to lie under a cover slip, the grain size must be reduced. Place a small amount between two slides and grind the material between them or grind a small amount in a clean mortar and pestle. The choice of whether to use an alumina, ruby, or diamond mortar depends on the hardness of the material. Impact damage can alter the asbestos mineral if too much mechanical shock occurs. (Freezer mills can completely destroy the observable crystallinity of asbestos and should not be used). For some samples, a portion of material can be shaved off with a scalpel, ground off with a hand grinder or hack saw blade.

The preparation tools should either be disposable or cleaned thoroughly. Use vigorous scrubbing to loosen the fibers during the washing. Rinse the implements with copious amounts of water and air-dry in a dust-free environment.

(2) If the sample is powder or has been reduced as in 1) above, it is ready to mount. Place a glass slide on a piece of optical tissue and write the identification on the painted or frosted end. Place two drops of index of refraction medium n=1.550 on the slide. (The medium n=1.550 is chosen because it is the matching index for chrysotile. Dip the end of a clean paper-clip or dissecting needle into the droplet of refraction medium *on the slide* to moisten it. Then dip the probe into the powder sample. Transfer what sticks on the probe to the slide. The material on the end of the probe should have a diameter of about 3 mm for a good mount. If the material is very fine, less sample may be appropriate. For non-powder samples such as fiber mats, forceps should be used to transfer a small amount of material to the slide. Stir the material in the medium on the slide, spreading it out and making the preparation as uniform as possible. Place a cover-slip on the preparation by gently lowering onto the slide and allowing it to fall "trapdoor" fashion on the preparation to push out any bubbles. Press gently on the cover slip to even out the distribution of particulate on the slide. If there is insufficient mounting oil on the slide, one or two drops may be placed near the edge of the coverslip on the slide. Capillary action will draw the necessary amount of liquid into the preparation. Remove excess oil with the point of a laboratory wiper.

Treat at least two different areas of each phase in this fashion. Choose representative areas of the sample. It may be useful to select particular areas or fibers for analysis. This is useful to identify asbestos in severely inhomogeneous samples.

When it is determined that amphiboles may be present, repeat the above process using the appropriate high- dispersion oils until an identification is made or all six asbestos minerals have been ruled out. Note that percent determination must be done in the index medium 1.550 because amphiboles tend to disappear in their matching mediums.

3.5. Analytical procedure

Note: This method presumes some knowledge of mineralogy and optical petrography.

The analysis consists of three parts: The determination of whether there is asbestos present, what type is present and the determination of how much is present. The general flow of the analysis is:

(1) Gross examination.

(2) Examination under polarized light on the stereo microscope.

(3) Examination by phase-polar illumination on the compound phase microscope.

(4) Determination of species by dispersion stain. Examination by Becke line analysis may also be used; however, this is usually more cumbersome for asbestos determination.

(5) Difficult samples may need to be analyzed by SEM or TEM, or the results from those techniques combined with light microscopy for a definitive identification. Identification of a particle as asbestos requires that it be asbestiform. Description of particles should follow the suggestion of Campbell. (Figure 1)

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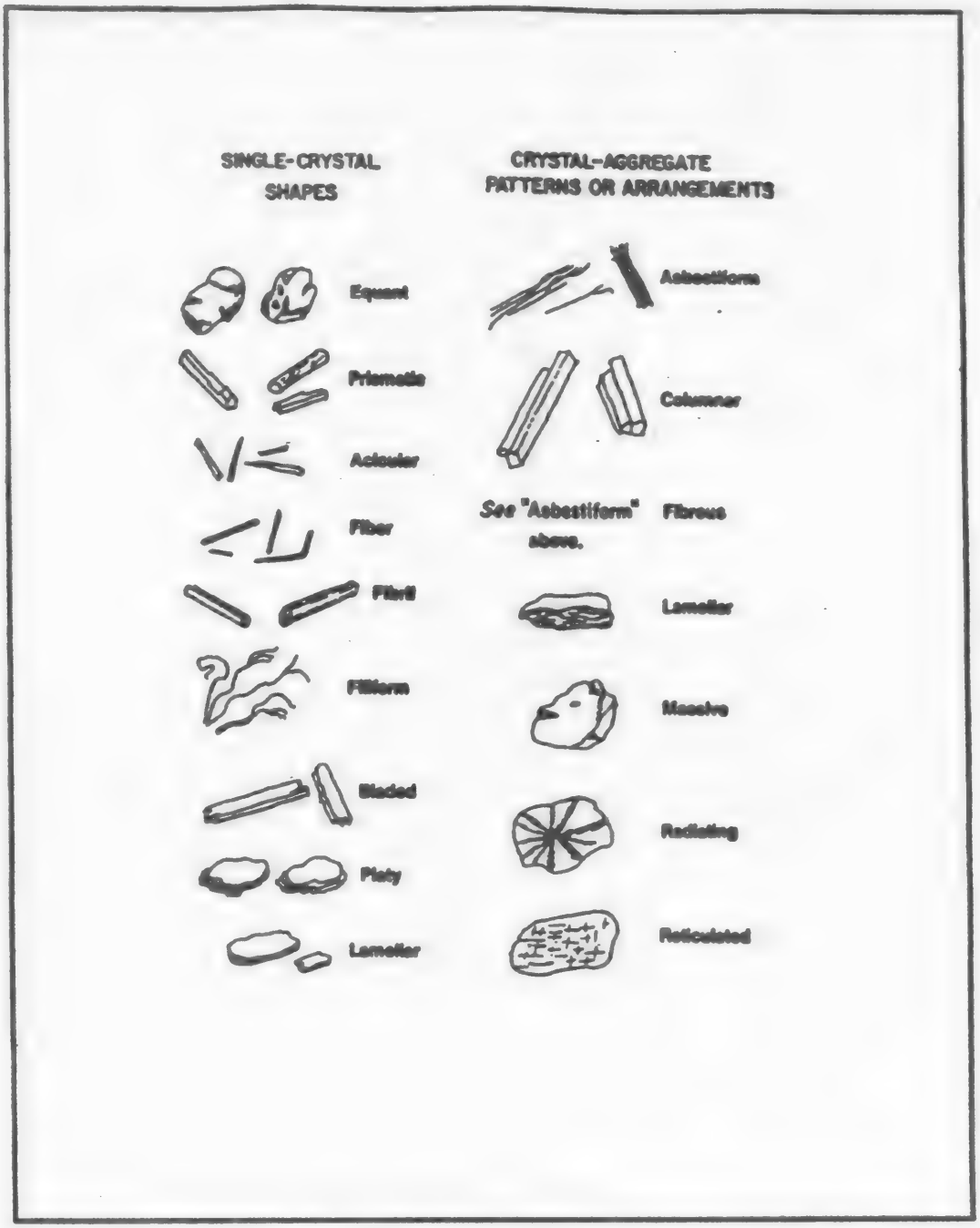

Figure 1. Particle definitions showing mineral growth habits. From the U.S. Bureau of Mines

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For the purpose of regulation, the mineral must be one of the six minerals covered and must be in the asbestos growth habit. Large specimen samples of asbestos generally have the gross appearance of wood. Fibers are easily parted from it. Asbestos fibers are very long compared with their widths. The fibers have a very high tensile strength as demonstrated by bending without breaking. Asbestos fibers exist in bundles that are easily parted, show longitudinal fine structure and may be tufted at the ends showing "bundle of sticks" morphology. In the microscope some of these properties may not be observable. Amphiboles do not always show striations along their length even when they are asbestos. Neither will they always show tufting. They generally do not show a curved nature except for very long fibers. Asbestos and asbestiform minerals are usually characterized in groups by extremely high aspect ratios (greater than 100:1). While aspect ratio analysis is useful for characterizing populations of fibers, it cannot be used to identify individual fibers of intermediate to short aspect ratio. Observation of many fibers is often necessary to determine whether a sample consists of "cleavage fragments" or of asbestos fibers.

Most cleavage fragments of the asbestos minerals are easily distinguishable from true asbestos fibers. This is because true cleavage fragments usually have larger diameters than 1 μm. Internal structure of particles larger than this usually shows them to have no internal fibrillar structure. In addition, cleavage fragments of the monoclinic amphiboles show inclined extinction under crossed polars with no compensator. Asbestos fibers usually show extinction at zero degrees or ambiguous extinction if any at all. Morphologically, the larger cleavage fragments are obvious by their blunt or stepped ends showing prismatic habit. Also, they tend to be acicular rather than filiform.

Where the particles are less than 1 μm in diameter and have an aspect ratio greater than or equal to 3:1, it is recommended that the sample be analyzed by SEM or TEM if there is any question whether the fibers are cleavage fragments or asbestiform particles.

Care must be taken when analyzing by electron microscopy because the interferences are different from those in light microscopy and may structurally be very similar to asbestos. The classic interference is between anthophyllite and biopyribole or intermediate fiber. Use the same morphological clues for electron microscopy as are used for light microscopy, e.g. fibril splitting, internal longitudinal striation, fraying, curvature, etc.

(1) Gross examination:

Examine the sample, preferably in the glass vial. Determine the presence of any obvious fibrous component. Estimate a percentage based on previous experience and current observation. Determine whether any pre-preparation is necessary. Determine the number of phases present. This step may be carried out or augmented by observation at 6 to 40× under a stereo microscope.

(2) After performing any necessary pre-preparation, prepare slides of each phase as described above. Two preparations of the same phase in the same index medium can be made side-by-side on the same glass for convenience. Examine with the polarizing stereo microscope. Estimate the percentage of asbestos based on the amount of birefringent fiber present.

(3) Examine the slides on the phase-polar microscopes at magnifications of 160 and 400×. Note the morphology of the fibers. Long, thin, very straight fibers with little curvature are indicative of fibers from the amphibole family. Curved, wavy fibers are usually indicative of chrysotile. Estimate the percentage of asbestos on the phase-polar microscope under conditions of crossed polars and a gypsum plate. Fibers smaller than 1.0 μm in thickness must be identified by inference to the presence of larger, identifiable fibers and morphology. If no larger fibers are visible, electron microscopy should be performed. At this point, only a tentative identification can be made. Full identification must be made with dispersion microscopy. Details of the tests are included in the appendices.

(4) Once fibers have been determined to be present, they must be identified. Adjust the microscope for dispersion mode and observe the fibers. The microscope has a rotating stage, one polarizing element, and a system for generating dark-field dispersion microscopy (see Section 4.6. of this appendix). Align a fiber with its length parallel to the polarizer and note the color of the Becke lines. Rotate the stage to bring the fiber length perpendicular to the polarizer and note the color. Repeat this process for every fiber or fiber bundle examined. The colors must be consistent with the colors generated by standard asbestos reference materials for a positive identification. In n=1.550, amphiboles will generally show a yellow to straw-yellow color indicating that the fiber indices of refraction are higher than the liquid. If long, thin fibers are noted and the colors are yellow, prepare further slides as above in the suggested matching liquids listed below:

Type of asbestos	Index of refraction
Chrysotile	n=1.550.
Amosite	n=1.670 r 1.680.
Crocidolite	n=1.690.
Anthophyllite	n=1.605 nd 1.620.
Tremolite	n=1.605 and 1.620.
Actinolite	n=1.620.

Where more than one liquid is suggested, the first is preferred; however, in some cases this liquid will not give good dispersion color. Take care to avoid interferences in the other liquid; e.g., wollastonite in n=1.620 will give the same colors as tremolite. In n=1.605 wollastonite will appear yellow in all directions. Wollastonite may be determined under crossed polars as it will change from blue to yellow as it is rotated along its fiber axis by tapping on the cover slip. Asbestos minerals will not change in this way.

Determination of the angle of extinction may, when present, aid in the determination of anthophyllite from tremolite. True asbestos fibers usually have 0° extinction or ambiguous extinction, while cleavage fragments have more definite extinction.

Continue analysis until both preparations have been examined and all present species of asbestos are identified. If there are no fibers present, or there is less than 0.1% present, end the analysis with the minimum number of slides (2).

(5) Some fibers have a coating on them which makes dispersion microscopy very difficult or impossible. Becke line analysis or electron microscopy may be performed in those cases. Determine the percentage by light microscopy. TEM analysis tends to overestimate the actual percentage present.

(6) Percentage determination is an estimate of occluded area, tempered by gross observation. Gross observation information is used to make sure that the high magnification microscopy does not greatly over- or under-estimate the amount of fiber present. This part of the analysis requires a great deal of experience. Satisfactory models for asbestos content analysis have not yet been developed, although some models based on metallurgical grain-size determination have found some utility. Estimation is more easily handled in situations where the grain sizes visible at about 160× are about the same and the sample is relatively homogeneous.

View all of the area under the cover slip to make the percentage determination. View the fields while moving the stage, paying attention to the clumps of material. These are not usually the best areas to perform dispersion microscopy because of the interference from other materials. But, they are the areas most likely to represent the accurate percentage in the sample. Small amounts of asbestos require slower scanning and more frequent analysis of individual fields.

Report the area occluded by asbestos as the concentration. This estimate does not generally take into consideration the difference in density of the different species present in the sample. For most samples this is adequate. Simulation studies with similar materials must be carried out to apply microvisual estimation for that purpose and is beyond the scope of this procedure.

(7) Where successive concentrations have been made by chemical or physical means, the amount reported is the percentage of the material in the "as submitted" or original state. The percentage determined by microscopy is multiplied by the fractions remaining after pre-preparation steps to give the percentage in the original sample. For example:

Step 1. 60% remains after heating at 550 °C for 1 h.

Step 2. 30% of the residue of step 1 remains after dissolution of carbonate in 0.1 m HCl.

Step 3. Microvisual estimation determines that 5% of the sample is chrysotile asbestos.

The reported result is:

R=(Microvisual result in percent)×(Fraction remaining after step 2)×(Fraction remaining of original sample after step 1)

R =(5)×(.30)×(.60)=0.9%

(8) Report the percent and type of asbestos present. For samples where asbestos was identified, but is less than 1.0%, report "Asbestos present, less than 1.0%." There

must have been at least two observed fibers or fiber bundles in the two preparations to be reported as present. For samples where asbestos was not seen, report as "None Detected."

Auxiliary Information

Because of the subjective nature of asbestos analysis, certain concepts and procedures need to be discussed in more depth. This information will help the analyst understand why some of the procedures are carried out the way they are.

4.1. Light

Light is electromagnetic energy. It travels from its source in packets called quanta. It is instructive to consider light as a plane wave. The light has a direction of travel. Perpendicular to this and mutually perpendicular to each other, are two vector components. One is the magnetic vector and the other is the electric vector. We shall only be concerned with the electric vector. In this description, the interaction of the vector and the mineral will describe all the observable phenomena. From a light source such a microscope illuminator, light travels in all different direction from the filament.

In any given direction away from the filament, the electric vector is perpendicular to the direction of travel of a light ray. While perpendicular, its orientation is random about the travel axis. If the electric vectors from all the light rays were lined up by passing the light through a filter that would only let light rays with electric vectors oriented in one direction pass, the light would then be *POLARIZED*.

Polarized light interacts with matter in the direction of the electric vector. This is the polarization direction. Using this property it is possible to use polarized light to probe different materials and identify them by how they interact with light. The speed of light in a vacuum is a constant at about 2.99×10^8 m/s. When light travels in different materials such as air, water, minerals or oil, it does not travel at this speed. It travels slower. This slowing is a function of both the material through which the light is traveling and the wavelength or frequency of the light. In general, the more dense the material, the slower the light travels. Also, generally, the higher the frequency, the slower the light will travel. The ratio of the speed of light in a vacuum to that in a material is called the index of refraction (n). It is usually measured at 589 nm (the sodium D line). If white light (light containing all the visible wavelengths) travels through a material, rays of longer wavelengths will travel faster than those of shorter wavelengths, this separation is called dispersion. Dispersion is used as an identifier of materials as described in Section 4.6.

4.2. Material Properties

Materials are either amorphous or crystalline. The difference between these two descriptions depends on the positions of the atoms in them. The atoms in amorphous materials are randomly arranged with no long range order. An example of an amorphous material is glass. The atoms in crystalline materials, on the other hand, are in regular arrays and have long range order. Most of the atoms can be found in highly predictable locations. Examples of crystalline material are salt, gold, and the asbestos minerals.

It is beyond the scope of this method to describe the different types of crystalline materials that can be found, or the full description of the classes into which they can fall. However, some general crystallography is provided below to give a foundation to the procedures described.

With the exception of anthophyllite, all the asbestos minerals belong to the monoclinic crystal type. The unit cell is the basic repeating unit of the crystal and for monoclinic crystals can be described as having three unequal sides, two 90° angles and one angle not equal to 90°. The orthorhombic group, of which anthophyllite is a member has three unequal sides and three 90° angles. The unequal sides are a consequence of the complexity of fitting the different atoms into the unit cell. Although the atoms are in a regular array, that array is not symmetrical in all directions. There is long range order in the three major directions of the crystal. However, the order is different in each of the three directions. This has the effect that the index of refraction is different in each of the three directions. Using polarized light, we can investigate the index of refraction in each of the directions and identify the mineral or material under investigation. The indices α, β, and γ are used to identify the lowest, middle, and highest index of refraction respectively. The x direction, associated with α is called the fast axis. Conversely, the z direction is associated with γ and is the slow direction. Crocidolite has α along the fiber length making it "length-fast". The remainder of the asbestos minerals have the γ axis along the fiber length. They are called "length-slow". This orientation to fiber length is used to aid in the identification of asbestos.

4.3. Polarized Light Technique

Polarized light microscopy as described in this section uses the phase-polar microscope described in Section 3.2. A phase contrast microscope is fitted with two polarizing elements, one below and one above the sample. The polarizers have their polarization directions at right angles to each other. Depending on the tests performed, there may be a compensator between these two polarizing elements. A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train. Light emerging from a polarizing element has its electric vector pointing in the polarization direction of the element. The light will not be subsequently transmitted through a second element set at a right angle to the first element. Unless the light is altered as it passes from one element to the other, there is no transmission of light.

4.4. Angle of Extinction

Crystals which have different crystal regularity in two or three main directions are said to be anisotropic. They have a different index of refraction in each of the main directions. When such a crystal is inserted between the crossed polars, the field of view is no longer dark but shows the crystal in color. The color depends on the properties of the crystal. The light acts as if it travels through the crystal along the optical axes. If a crystal optical axis were lined up along one of the polarizing directions (either the polarizer or the analyzer) the light would appear to travel only in that direction, and it would blink out or go dark. The difference in degrees between the fiber direction and the angle at which it blinks out is called the angle of extinction. When this angle can be measured, it is useful in identifying the mineral. The procedure for measuring the angle of extinction is to first identify the polarization direction in the microscope. A commercial alignment slide can be used to establish the polarization directions or use anthophyllite or another suitable mineral. This mineral has a zero degree angle of extinction and will go dark to extinction as it aligns with the polarization directions. When a fiber of anthophyllite has gone to extinction, align the eyepiece reticle or graticule with the fiber so that there is a visual cue as to the direction of polarization in the field of view. Tape or otherwise secure the eyepiece in this position so it will not shift.

After the polarization direction has been identified in the field of view, move the particle of interest to the center of the field of view and align it with the polarization direction. For fibers, align the fiber along this direction. Note the angular reading of the rotating stage. Looking at the particle, rotate the stage until the fiber goes dark or "blinks out". Again note the reading of the stage. The difference in the first reading and the second is an angle of extinction.

The angle measured may vary as the orientation of the fiber changes about its long axis. Tables of mineralogical data usually report the maximum angle of extinction. Asbestos forming minerals, when they exhibit an angle of extinction, usually do show an angle of extinction close to the reported maximum, or as appropriate depending on the substitution chemistry.

4.5. Crossed Polars With Compensator

When the optical axes of a crystal are not lined up along one of the polarizing directions (either the polarizer or the analyzer) part of the light travels along one axis and part travels along the other visible axis. This is characteristic of birefringent materials.

The color depends on the difference of the two visible indices of refraction and the thickness of the crystal. The maximum difference available is the difference between the α and the γ axes. This maximum difference is usually tabulated as the birefringence of the crystal.

For this test, align the fiber at 45° to the polarization directions in order to maximize the contribution to each of the optical axes. The colors seen are called retardation colors. They arise from the recombination of light which has traveled through the two separate directions of the crystal. One of the rays is retarded behind the other since the light in that direction travels slower. On recombination, some of the colors which make up white light are enhanced by constructive interference and some are suppressed by destructive interference. The result is a color dependent on the difference between the indices and the thickness of the crystal. The proper colors, thicknesses, and

retardations are shown on a Michel-Levy chart. The three items, retardation, thickness and birefringence are related by the following relationship: λ

$R = t(n_\gamma - n_\alpha)$

R = retardation, t = crystal thickness in μm, and

α,γ = indices of refraction.

Examination of the equation for asbestos minerals reveals that the visible colors for almost all common asbestos minerals and fiber sizes are shades of gray and black. The eye is relatively poor at discriminating different shades of gray. It is very good at discriminating different colors. In order to compensate for the low retardation, a compensator is added to the light train between the polarization elements. The compensator used for this test is a gypsum plate of known thickness and birefringence. Such a compensator when oriented at 45° to the polarizer direction, provides a retardation of 530 nm of the 530 nm wavelength color. This enhances the red color and gives the background a characteristic red to red-magenta color. If this "full-wave" compensator is in place when the asbestos preparation is inserted into the light train, the colors seen on the fibers are quite different. Gypsum, like asbestos has a fast axis and a slow axis. When a fiber is aligned with its fast axis in the same direction as the fast axis of the gypsum plate, the ray vibrating in the slow direction is retarded by both the asbestos and the gypsum. This results in a higher retardation than would be present for either of the two minerals. The color seen is a second order blue. When the fiber is rotated 90° using the rotating stage, the slow direction of the fiber is now aligned with the fast direction of the gypsum and the fast direction of the fiber is aligned with the slow direction of the gypsum. Thus, one ray vibrates faster in the fast direction of the gypsum, and slower in the slow direction of the fiber; the other ray will vibrate slower in the slow direction of the gypsum and faster in the fast direction of the fiber. In this case, the effect is subtractive and the color seen is a first order yellow. As long as the fiber thickness does not add appreciably to the color, the same basic colors will be seen for all asbestos types except crocidolite. In crocidolite the colors will be weaker, may be in the opposite directions, and will be altered by the blue absorption color natural to crocidolite. Hundreds of other materials will give the same colors as asbestos, and therefore, this test is not definitive for asbestos. The test is useful in discriminating against fiberglass or other amorphous fibers such as some synthetic fibers. Certain synthetic fibers will show retardation colors different than asbestos; however, there are some forms of polyethylene and aramid which will show morphology and retardation colors similar to asbestos minerals. This test must be supplemented with a positive identification test when birefringent fibers are present which can not be excluded by morphology. This test is relatively ineffective for use on fibers less than 1 μm in diameter. For positive confirmation TEM or SEM should be used if no larger bundles or fibers are visible.

4.6. Dispersion Staining

Dispersion microscopy or dispersion staining is the method of choice for the identification of asbestos in bulk materials. Becke line analysis is used by some laboratories and yields the same results as does dispersion staining for asbestos and can be used in lieu of dispersion staining. Dispersion staining is performed on the same platform as the phase-polar analysis with the analyzer and compensator removed. One polarizing element remains to define the direction of the light so that the different indices of refraction of the fibers may be separately determined. Dispersion microscopy is a dark-field technique when used for asbestos. Particles are imaged with scattered light. Light which is unscattered is blocked from reaching the eye either by the back field image mask in a McCrone objective or a back field image mask in the phase condenser. The most convenient method is to use the rotating phase condenser to move an oversized phase ring into place. The ideal size for this ring is for the central disk to be just larger than the objective entry aperture as viewed in the back focal plane. The larger the disk, the less scattered light reaches the eye. This will have the effect of diminishing the intensity of dispersion color and will shift the actual color seen. The colors seen vary even on microscopes from the same manufacturer. This is due to the different bands of wavelength exclusion by different mask sizes. The mask may either reside in the condenser or in the objective back focal plane. It is imperative that the analyst determine by experimentation with asbestos standards what the appropriate colors should be for each asbestos type. The colors depend also on the temperature of the preparation and the exact chemistry of the asbestos. Therefore, some slight differences from the standards should be allowed. This is not a serious problem for commercial asbestos uses. This technique is used for identification of the indices of refraction for fibers by recognition of color. There is no direct numerical readout of the index of refraction. Correlation of color to actual index of refraction is possible by referral to published conversion tables. This is not necessary for the analysis of asbestos. Recognition of appropriate colors along with the proper morphology are deemed sufficient to identify the commercial asbestos minerals. Other techniques including SEM, TEM, and XRD may be required to provide additional information in order to identify other types of asbestos.

Make a preparation in the suspected matching high dispersion oil, e.g., n=1.550 for chrysotile. Perform the preliminary tests to determine whether the fibers are birefringent or not. Take note of the morphological character. Wavy fibers are indicative of chrysotile while long, straight, thin, frayed fibers are indicative of amphibole asbestos. This can aid in the selection of the appropriate matching oil. The microscope is set up and the polarization direction is noted as in Section 4.4. Align a fiber with the polarization direction. Note the color. This is the color parallel to the polarizer. Then rotate the fiber rotating the stage 90° so that the polarization direction is across the fiber. This is the perpendicular position. Again note the color. Both colors must be consistent with standard asbestos minerals in the correct direction for a positive identification of asbestos. If only one of the colors is correct while the other is not, the identification is not positive. If the colors in both directions are bluish-white, the analyst has chosen a matching index oil which is higher than the correct matching oil, e.g. the analyst has used n = 1.620 where chrysotile is present. The next lower oil (Section 3.5.) should be used to prepare another specimen. If the color in both directions is yellow-white to straw-yellow-white, this indicates that the index of the oil is lower than the index of the fiber, e.g. the preparation is in n = 1.550 while anthophyllite is present. Select the next higher oil (Section 3.5.) and prepare another slide. Continue in this fashion until a positive identification of all asbestos species present has been made or all possible asbestos species have been ruled out by negative results in this test. Certain plant fibers can have similar dispersion colors as asbestos. Take care to note and evaluate the morphology of the fibers or remove the plant fibers in pre-preparation. Coating material on the fibers such as carbonate or vinyl may destroy the dispersion color. Usually, there will be some outcropping of fiber which will show the colors sufficient for identification. When this is not the case, treat the sample as described in Section 3.3. and then perform dispersion staining. Some samples will yield to Becke line analysis if they are coated or electron microscopy can be used for identification.

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Appendix L to § 1915.1001—Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair and Assembly—Mandatory

This mandatory appendix specifies engineering controls and work practices that must be implemented by the employer during automotive brake and clutch inspection, disassembly, repair, and assembly operations. Proper use of these engineering controls and work practices will reduce employees' asbestos exposure below the permissible exposure level during clutch and brake inspection, disassembly, repair, and assembly operations. The employer shall institute engineering controls and work practices using either the method set forth in paragraph [A] or paragraph [B] of this appendix, or any other method which the employer can demonstrate to be equivalent in terms of reducing employee exposure to asbestos as defined and which meets the requirements described in paragraph [C] of this appendix, for those facilities in which no more than 5 pairs of brakes or 5 clutches are inspected, disassembled, reassembled and/or repaired per week, the method set forth in paragraph [D] of this appendix may be used:

[A] Negative Pressure Enclosure/HEPA Vacuum System Method

(1) The brake and clutch inspection, disassembly, repair, and assembly operations shall be enclosed to cover and contain the clutch or brake assembly and to prevent the release of asbestos fibers into the worker's breathing zone.

(2) The enclosure shall be sealed tightly and thoroughly inspected for leaks before work begins on brake and clutch inspection, disassembly, repair, and assembly.

(3) The enclosure shall be such that the worker can clearly see the operation and shall provide impermeable sleeves through which the worker can handle the brake and clutch inspection, disassembly, repair and assembly. The integrity of the sleeves and ports shall be examined before work begins.

(4) A HEPA-filtered vacuum shall be employed to maintain the enclosure under negative pressure throughout the operation. Compressed-air may be used to remove asbestos fibers or particles from the enclosure.

(5) The HEPA vacuum shall be used first to loosen the asbestos containing residue from the brake and clutch parts and then to evacuate the loosened asbestos containing material from the enclosure and capture the material in the vacuum filter.

(6) The vacuum's filter, when full, shall be first wetted with a fine mist of water, then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(2)(ii) of this section and disposed of according to paragraph (k) of this section.

(7) Any spills or releases of asbestos containing waste material from inside of the enclosure or vacuum hose or vacuum filter shall be immediately cleaned up and disposed of according to paragraph (k) of the section.

[B] Low Pressure/Wet Cleaning Method

(1) A catch basin shall be placed under the brake assembly, positioned to avoid splashes and spills.

(2) The reservoir shall contain water containing an organic solvent or wetting agent. The flow of liquid shall be controlled such that the brake assembly is gently flooded to prevent the asbestos-containing brake dust from becoming airborne.

(3) The aqueous solution shall be allowed to flow between the brake drum and brake support before the drum is removed.

(4) After removing the brake drum, the wheel hub and back of the brake assembly shall be thoroughly wetted to suppress dust.

(5) The brake support plate, brake shoes and brake components used to attach the brake shoes shall be thoroughly washed before removing the old shoes.

(6) In systems using filters, the filters, when full, shall be first wetted with a fine mist of water, then removed and placed immediately in an impermeable container, labeled according to paragraph (j)(2)(ii) of this section and disposed of according to paragraph (k) of this section.

(7) Any spills of asbestos-containing aqueous solution or any asbestos-containing waste material shall be cleaned up immediately and disposed of according to paragraph (k) of this section.

(8) The use of dry brushing during low pressure/wet cleaning operations is prohibited.

[C] Equivalent Methods

An equivalent method is one which has sufficient written detail so that it can be reproduced and has been demonstrated that the exposures resulting from the equivalent method are equal to or less than the exposures which would result from the use of the method described in paragraph [A] of this appendix. For purposes of making this comparison, the employer shall assume that exposures resulting from the use of the method described in paragraph [A] of this appendix shall not exceed 0.004 f/cc, as measured by the OSHA reference method and as averaged over at least 18 personal samples.

[D] Wet Method

(1) A spray bottle, hose nozzle, or other implement capable of delivering a fine mist of water or amended water or other delivery system capable of delivering water at low pressure, shall be used to first thoroughly wet the brake and clutch parts. Brake and clutch components shall then be wiped clean with a cloth.

(2) The cloth shall be placed in an impermeable container, labelled according to paragraph (j)(2)(ii) of this section and then disposed of according to paragraph (k) of this section, or the cloth shall be laundered in a way to prevent the release of asbestos fibers in excess of 0.1 fiber per cubic centimeter of air.

(3) Any spills of solvent or any asbestos containing waste material shall be cleaned up immediately according to paragraph (k) of this section.

(4) The use of dry brushing during the wet method operations is prohibited.

Construction

PART 1926—[AMENDED]

1. The authority citation of subpart Z of 29 CFR part 1926 continues to read as follows:

Authority: Sections 6 and 8, Occupational Safety and Health Act, 29 U.S.C. 655, 657; Secretary of Labor's Orders Nos. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736) or 1–90 (55 FR 9033) as applicable; and 29 CFR part 1911.

Section 1926.1102 not issued under 29 U.S.C. 655 or 29 CFR part 1911; also issued under 5 U.S.C. 653.

Section 1926.1103 through 1926.1118 also issued under 29 U.S.C. 6653.

Section 1926.1128 also issued under 29 U.S.C. 653.

Section 1926.1145 and 1926.1147 also issued under 29 U.S.C. 653.

Section 1926.1148 also issued under 29 U.S.C. 653.

2. Section 1926.58 Asbestos, tremolite, anthophyllite, and actinolite is redesignated as § 1926.1101 Asbestos and § 1926.58 is reserved.

3. Section 1926.1101 is amended by revising the section heading and

paragraphs (a) through (p) (all the text preceding the appendices) and by adding paragraph (q) to read as follows:

§ 1926.1101 Asbestos.

(a) Scope and application. This section regulates asbestos exposure in all work as defined in 29 CFR 1910.12(b), including but not limited to the following:

(1) Demolition or salvage of structures where asbestos is present;

(2) Removal or encapsulation of materials containing asbestos;

(3) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;

(4) Installation of products containing asbestos;

(5) Asbestos spill/emergency cleanup; and

(6) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed.

(7) Coverage under this standard shall be based on the nature of the work operation involving asbestos exposure.

(b) Definitions.

Aggressive method means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

Amended water means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

Asbestos-containing material (ACM), means any material containing more than one percent asbestos.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas.

Building/facility owner is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

Certified Industrial Hygienist (CIH) means one certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I asbestos work means activities involving the removal of TSI and surfacing ACM and PACM.

Class II asbestos work means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III asbestos work means repair and maintenance operations, where "ACM", including thermal system insulation and surfacing material, is likely to be disturbed.

Class IV asbestos work means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

Clean room means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

Closely resemble means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

Competent person means, in addition to the definition in 29 CFR 1926.32 (f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f): in addition, for Class I and Class II work who is specially trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent and, for Class II and Class IV work, who is trained in an operations and maintenance (O&M) course developed by EPA [40 CFR 763.92 (a)(2)].

Critical barrier means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Decontamination area means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Director means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Disturbance means contact which releases fibers from ACM or PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Employee exposure means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Equipment room (change room) means a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

Fiber means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

Glovebag means an impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which material and tools may be handled.

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

Homogeneous area means an area of surfacing material or thermal system insulation that is uniform in color and texture.

Industrial hygienist means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

Intact means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.

Modification for purposes of paragraph (g)(6)(ii), means a changed or altered procedure, material or component of a control system, which

replaces a procedure, material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of paragraph (g)(6)(ii) of this section.

Negative Initial Exposure Assessment means a demonstration by the employer, which complies with the criteria in paragraph (f)(2)(iii) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

PACM means "presumed asbestos containing material".

Presumed Asbestos Containing Material means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to paragraph (k)(4) of this section.

Project Designer means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. § 763.90(g).

Regulated area means: an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in paragraph (e)(6) of this section.

Removal means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

Renovation means the modifying of any existing structure, or portion thereof.

Repair means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

Surfacing material means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

Surfacing ACM means surfacing material which contains more than 1% asbestos.

Thermal system insulation (TSI) means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

Thermal system insulation ACM is thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limits (PELS)—(1) Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A of this section, or by an equivalent method.

(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A of this section, or by an equivalent method.

(d) Multi-employer worksites. (1) On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(2) Asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.

(3) In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to (f)(1) of this section.

(4) All employers of employees working adjacent to regulated areas established by another employer on a multi-employer work-site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(5) All general contractors on a construction project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not qualified to serve as the asbestos "competent person" as defined by paragraph (b) of this section. As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.

(e) Regulated areas—(1) All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of paragraphs (2), (3),(4) and (5) of this section.

(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne concentrations of asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of paragraph (k)(6) of this section.

(3) Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Act or regulations issued pursuant thereto.

(4) Respirators. All persons entering a regulated area where employees are required pursuant to paragraph (h)(2) of this section to wear respirators shall be supplied with a respirator selected in accordance with paragraph (h)(2) of this section.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(6) Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in paragraph (b) of this section. The duties of the competent person are set out in paragraph (o) of this section.

(f) Exposure assessments and monitoring—(1) General monitoring criteria. (i) Each employer who has a workplace of work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne

concentrations of asbestos to which employees may be exposed.

(ii) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(iii) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(2) Initial Exposure Assessment. (i) Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace.

The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

(ii) Basis of Initial Exposure Assessment: The initial exposure assessment shall be based on data derived from the following sources: (A) If feasible, the employer shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted pursuant to the criteria in paragraph (f)(2)(iii) of this section.

(B) In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a "negative exposure assessment" conducted pursuant to (f)(2)(iii) of this section.

(C) For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(iii) Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria;

(A) Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

(B) Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

(C) The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(3) Periodic monitoring. (i) Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to (f)(2)(iii) of this section, has made a negative exposure assessment for the entire operation.

(ii) All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(iii) Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the positive-pressure mode, the employer may dispense with the daily monitoring required by this paragraph. However, employees performing Class I work using a control method which is not listed in paragraph (g)(4) (i), (ii), or (iii) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(4) (i) Termination of monitoring. If the periodic monitoring required by paragraph (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurement, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(ii) Additional monitoring. Notwithstanding the provisions of paragraph (f) (2) and (3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under paragraph (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(5) Observation of monitoring. (i) The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(ii) When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g) Methods of compliance—(1) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by

this section, regardless of the levels of exposure:

(i) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM or PACM; and,

(ii) Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, slipping hazards; and

(iii) Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers.

(2) In addition to the requirements of paragraph (g)(1) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by paragraph (c) of this section:

(i) Local exhaust ventilation equipped with HEPA filter dust collection systems;

(ii) Enclosure or isolation of processes producing asbestos dust;

(iii) Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

(iv) Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

(v) Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in paragraph (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (h) of this section.

(3) Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(i) High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

(ii) Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

(iii) Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

(iv) Employee rotation as a means of reducing employee exposure to asbestos.

(4) Class I Requirements. In addition to the provisions of paragraphs (g) (1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

(i) All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in paragraph (b) of this section;

(ii) For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to paragraph (f)(2)(iii) of this section, or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

(A) Critical barriers shall be placed over all openings to the regulated area; or

(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpt. E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring.

(iii) For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(iv) For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(v) For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

(vi) For all Class I jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(5) Specific control methods for Class I work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(i) Negative Pressure Enclosure (NPE) systems: NPE systems shall be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

(A) Specifications:

(1) The negative pressure enclosure (NPE) may be of any configuration,

(2) At least 4 air changes per hour shall be maintained in the NPE,

(3) A minimum of −0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,

(4) The NPE shall be kept under negative pressure throughout the period of its use, and

(5) Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(B) Work Practices:

(1) Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks, and any leaks sealed.

(2) Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(ii) Glove bag systems shall be used to remove PACM and/or ACM from straight runs of piping with the following specifications and work practices.

(A) Specifications:

(1) Glovebags shall be made of 6 mil thick plastic and shall be seamless at the bottom.

(2) [Reserved]

(B) Work Practices:

(1) Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

(2) Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

(3) Glovebags may be used only once and may not be moved.

(4) Glovebags shall not be used on surfaces whose temperature exceeds 150°.

(5) Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

(6) Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact.

(7) Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity:

(8) Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

(9) At least two persons shall perform Class I glovebag removals.

(iii) Negative Pressure Glove Bag Systems. Negative pressure glove bag systems shall be used to remove ACM or PACM from piping.

(A) Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

(B) Work Practices: (1) The employer shall comply with the work practices glove bag systems in paragraph (g)(5)(ii)(B)(2) of this section.

(2) The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation.

(3) Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag may be reused if rinsed clean with amended water before reuse.

(iv) Negative Pressure Glove Box Systems: Negative pressure glove boxes shall be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

(A) Specifications:

(1) Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

(2) A negative pressure generator shall be used to create negative pressure in system:

(3) An air filtration unit shall be attached to the box:

(4) The box shall be fitted with gloved apertures:

(5) An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

(6) A back-up generator shall be present on site:

(7) Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

(B) Work practices:

(1) At least two persons shall perform the removal:

(2) The box shall be smoke tested prior to each use:

(3) Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

(4) A HEPA filtration system shall be used to maintain pressure barrier in box.

(v) Water Spray Process System. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

(A) Specifications:

(1) Piping shall be surrounded on 3 sides by rigid framing,

(2) A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

(3) The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

(B) Work Practices:

(1) The system shall be run for at least 10 minutes before removal begins.

(2) All removal shall take place within the water barrier.

(3) The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

(4) After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(vi) A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

(A) Specifications:

(1) The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

(2) The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

(B) Work practices:

(1) Before use, the minienclosure shall be inspected for leaks and smoke tested to detect breaches, and breaches sealed.

(2) Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed..

(3) During use air movement shall be directed away from the employee's breathing zone within the minienclosure.

(6) Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in paragraph (g)(5) of this section, or which modifies a control method referenced in paragraph (g)(5)of this section, if the following provisions are complied with:

(i) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(ii) A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in paragraph (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in paragraph (g)(4)(i)(B)(2) of this section.

(A) Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less , the evaluation required in paragraph (g)(6) of this section may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

(B) The evaluation of employee exposure required in paragraph (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

(iii) Before work which involves the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material is begun using an alternative method which has been the subject of a paragraph (g)(6) required evaluation and certification, the employer shall send a copy of such evaluation and certification to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue, NW, Washington, DC 20210.

(7) Work Practices and Engineering Controls for Class II work.

(i) All Class II work, shall be supervised by a competent person as defined in paragraph (b) of this section.

(ii) For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to paragraph (f)(4)(iii) of this section, or where during the job changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area;

(A) Critical barriers shall be placed over all openings to the regulated area; or,

(B) The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in paragraph (g)(4)(i)(B)(2) of this section.

(iii) Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(iv) All Class II asbestos work shall be performed using the work practices and requirements set out above in paragraph (g)(3) (i) through (v) of this section.

(8) Additional Controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this paragraph. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(i) For removing vinyl and asphalt flooring materials which contain ACM or for which in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to paragraph (g)(8)(i)(I) of this section. The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to paragraph (k)(8):

(A) Flooring or its backing shall not be sanded.

(B) Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

(C) Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

(D) All scraping of residual adhesive and/or backing shall be performed using wet methods.

(E) Dry sweeping is prohibited.

(F) Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of paragraph (g)(5)(iv) of this section.

(G) Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

(H) When tiles are heated and can be removed intact, wetting may be omitted.

(I) Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

(ii) For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

(A) Roofing material shall be removed in an intact state to the extent feasible.

(B) Wet methods shall be used where feasible.

(C) Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

(D) All loose dust left by the sawing operation must be HEPA vacuumed immediately.

(E) Unwrapped or unbagged roofing material shall be immediately lowered to the ground via covered, dust-tight chute, crane or hoist, or placed in an impermeable waste bag or wrapped in plastic sheeting and lowered to ground no later than the end of the work shift.

(F) Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

(G) Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down.

(iii) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM, the employer shall ensure that the following work practices are followed:

(A) Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.

(B) Each panel or shingle shall be sprayed with amended water prior to removal.

(C) Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

(D) Nails shall be cut with flat, sharp instruments.

(iv) When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

(A) If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in paragraph (g)(5)(ii) of this section.

(B) The gasket shall be thoroughly wetted with amended water prior to its removal.

(C) The wet gasket shall be immediately placed in a disposal container.

(D) Any scraping to remove residue must be performed wet.

(v) When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in paragraph (g)(8)(iv) (A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

(A) The material shall be thoroughly wetted with amended water prior and during its removal.

(B) The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

(C) Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

(D) Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

(vi) Alternative Work Practices and Controls. Instead of the work practices and controls listed in paragraph (g)(8) (i) through (v) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

(A) The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

(B) A competent person shall evaluate the work area, the projected work practices and the engineering controls,

and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(9) Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(i) The work shall be performed using wet methods.

(ii) To the extent feasible, the work shall be performed using local exhaust ventilation.

(iii) Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to paragraph (g)(5) of this section.

(iv) Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been exceeded, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with paragraph (g)(5) of this section.

(v) Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(10) Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in paragraph (k)(8) of this section. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in paragraph (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

(i) Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of paragraph (h) of this section.

(ii) Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

(h) Respiratory protection—(1) General. The employer shall provide respirators, and ensure that they are used, where required by this section. Respirators shall be used in the following circumstances:

(i) During all Class I asbestos jobs.

(ii) During all Class II work where the ACM is not removed in a substantially intact state.

(iii) During all Class II and III work which is not performed using wet methods.

(iv) During all Class II and III asbestos jobs where the employer does not produce a "negative exposure assessment".

(v) During all Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

(vi) During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.

(vii) During all work covered by this section where employees are exposed above the TWA or excursion limit.

(viii) In emergencies.

(2) Respirator selection. (i) Where respirators are used, the employer shall select and provide, at no cost to the employee, the appropriate respirator as specified in Table 1 in paragraph (h)(2)(iii) of this section, and shall ensure that the employee uses the respirator provided.

(ii) The employer shall select respirators from among those jointly approved as being acceptable for protection by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 30 CFR Part 11.

(iii) The employer shall provide a tight fitting powered, air-purifying respirator in lieu of any negative-pressure respirator specified in Table 1 whenever:

(A) An employee chooses to use this type of respirator; and

(B) This respirator will provide adequate protection to the employee.

TABLE 1.—RESPIRATORY PROTECTION FOR ASBESTOS FIBERS

Airborne concentration of asbestos or conditions of use	Required respirator
Not in excess of 1 f/cc (10 X PEL), or otherwise as required independent of exposure pursuant to (h)(2)(iv).	Half-mask air purifying respirator other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc (50 X PEL).	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc (100 X PEL).	Any powered air-purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc (1,000 X PEL).	Full facepiece supplied air respirator operated in pressure demand mode.
Greater than 100 f/cc (1,000 X PEL) or unknown concentration.	Full facepiece supplied air respirator operated in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

NOTE: a. Respirators assigned for high environmental concentrations may be used at lower concentrations, or when required respirator use is independent of concentration.

b. A high efficiency filter means a filter that is at least 99.97 percent efficient against mono-dispersed particles of 0.3 micrometers in diameter or larger.

(iv) In addition to the above selection criterion, the employer shall provide a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters whenever the employee performs the following activities: Class II and III asbestos jobs where the employer does not produce a negative exposure assessment; and Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

(v) In addition to the above selection criteria, the employer shall provide a full facepiece supplied air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus for all employees within the regulated area where Class I work is being performed for which a negative exposure assessment has not been produced.

(3) Respirator program. (i) Where respiratory protection is used, the employer shall institute a respirator

program in accordance with 29 CFR 1910.134(b), (d), (e), and (f).

(ii) The employer shall permit each employee who uses a filter respirator to change the filter elements whenever an increase in breathing resistance is detected and shall maintain an adequate supply of filter elements for this purpose.

(iii) Employees who wear respirators shall be permitted to leave work areas to wash their faces and respirator facepieces whenever necessary to prevent skin irritation associated with respirator use.

(iv) No employee shall be assigned to tasks requiring the use of respirators if, based on his or her most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or of other employees will be impaired by the use of a respirator. Such employee shall be assigned to another job or given the opportunity to transfer to a different position the duties of which he or she is able to perform with the same employer, in the same geographical area, and with the same seniority, status, and rate of pay and other job benefits he or she had just prior to such transfer, if such a different position is available.

(4) Respirator fit testing. (i) The employer shall ensure that the respirator issued to the employee exhibits the least possible facepiece leakage and that the respirator is fitted properly.

(ii) Employers shall perform either quantitative or qualitative face fit tests at the time of initial fitting and at least every 6 months thereafter for each employee wearing a negative-pressure respirator. The qualitative fit tests may be used only for testing the fit of half-mask respirators where they are permitted to be worn, or of full-facepiece air purifying respirators where they are worn at levels at which half-facepiece air purifying respirators are permitted. Qualitative and quantitative fit tests shall be conducted in accordance with Appendix C. The tests shall be used to select facepieces that provide the required protection as prescribed in Table 1 in paragraph (h)(2)(iii) of this section.

(i) Protective clothing—(1) General. The employer shall provide and require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed in paragraph (c) of this section, or for which a required negative exposure assessment is not produced, and for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(2) Laundering. (i) The employer shall ensure that laundering of contaminated clothing is done so as to prevent the release of airborne asbestos in excess of the TWA or excursion limit prescribed in paragraph (c) of this section.

(ii) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in paragraph (i)(2)(i) of this section to effectively prevent the release of airborne asbestos in excess of the TWA and excursion limit prescribed in paragraph (c) of this section.

(3) Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with paragraph (k) of this section.

(4) Inspection of protective clothing. (i) The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(ii) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

(j) Hygiene facilities and practices for employees. (1) Requirements for employees performing Class I asbestos jobs involving over 25 linear or 10 square feet of Tsi or surfacing ACM and PACM.

(i) Decontamination areas: the employer shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

(A) Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

(B) Shower area. Shower facilities shall be provided which comply with 29 CFR 1910.141(d)(3), unless the employer can demonstrate that they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless the employer can demonstrate that this location is not feasible.

Where the employer can demonstrate that it is not feasible to locate the shower between the equipment room and the clean room, or where the work is performed outdoors, the employers shall ensure that employees:

(*1*) Remove asbestos contamination from their worksuits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or

(*2*) Remove their contaminated worksuits in the equipment room, then don clean worksuits, and proceed to a shower that is not adjacent to the work area.

(C) Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. When the employer can demonstrate that it is not feasible to provide a clean change area adjacent to the work area or where the work is performed outdoors, the employer may permit employees engaged in Class I asbestos jobs to clean their protective clothing with a portable HEPA-equipped vacuum before such employees leave the regulated area. Such employees however must then change into street clothing in clean change areas provided by the employer which otherwise meet the requirements of this section.

(ii) Decontamination area entry procedures. The employer shall ensure that employees:

(A) Enter the decontamination area through the clean room;

(B) Remove and deposit street clothing within a locker provided for their use; and

(C) Put on protective clothing and respiratory protection before leaving the clean room.

(D) Before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

(iii) Decontamination area exit procedures. The employer shall ensure that:

(A) Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.

(B) Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.

(C) Employees shall not remove their respirators in the equipment room.

(D) Employees shall shower prior to entering the clean room.

(E) After showering, employees shall enter the clean room before changing into street clothes.

(iv) Lunch Areas. Whenever food or beverages are consumed at the worksite where employees are performing Class I asbestos work, the employer shall

provide lunch areas in which the airborne concentrations of asbestos are below the permissible exposure limit and/or excursion limit.

(2) Requirements for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM and PACM, and for Class II and Class III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation.

(i) The employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor or horizontal working surface.

(ii) The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area (as determined by visible accumulations).

(iii) Workclothing must be cleaned with a HEPA vacuum before it is removed.

(iv) All equipment and surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.

(v) The employer shall ensure that employees enter and exit the regulated area through the equipment room or area.

(3) Requirements for Class IV work. Employers shall ensure that employees performing Class IV work within a regulated area comply with the hygiene practice required of employees performing work which has a higher classification within that regulated area. Otherwise employers of employees cleaning up debris and material which is TSI or surfacing ACM or identified as PACM shall provide decontamination facilities for such employees which are required by paragraph (j)(2) of this section.

(4) Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(k) Communication of hazards. NOTE: This section applies to the communication of information concerning asbestos hazards in construction activities to facilitate compliance with this standard. Most asbestos-related construction activities involve previously installed building materials. Building owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section. Installed Asbestos Containing Building Material. Employers and building owners are required to treat TSI and sprayed or troweled on surfacing materials in buildings as asbestos-containing, unless they determine in compliance with paragraph (k)(4) of this section that the material is not asbestos-containing. Asphalt and vinyl flooring material installed no later than 1980 must also be considered as asbestos containing unless the employer, pursuant to paragraph (g) of this section determines that it is not asbestos-containing. If the employer/building owner has actual knowledge, or should have known through the exercise of due diligence, that other materials are asbestos-containing, they too must be treated as such. When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multi-employer worksites are set out in paragraph (d) of this section.

(1) Duties of building and facility owners. (i) Before work subject to this standard is begun, building and facility owners shall identify the presence, location and quantity of ACM, and/or PACM at the work site. All thermal system insulation and sprayed on or troweled on surfacing m2aterials in buildings or substrates constructed no later than 1980 shall also be identified as asbestos-containing. In addition resilient flooring material installed not later than 1980 shall also be identified as asbestos-containing.

(ii) Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

(A) Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

(B) Employees of the owner who will work in or adjacent to areas containing such material:

(C) On multi-employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

(D) Tenants who will occupy areas containing such material.

(2) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/facility owners whose employees perform such work shall comply with these provisions to the extent applicable.

(i) Before work in areas containing ACM and PACM is begun; employers shall identify the presence, location, and quantity of ACM, and/or PACM therein.

(ii) Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present in the area and the precautions to be taken to insure that airborne asbestos is confined to the area.

(A) Owners of the building/facility;

(B) Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas.

(iii) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

(3) In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(4) Criteria to rebut the designation of installed material as PACM. (i) At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of paragraph (k)(4)(ii) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to paragraph (n) of this section.

(ii) An employer or owner may demonstrate that PACM does not contain asbestos by the following: (A) Having an completed inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM;

(B) Performing tests of the material containing PACM which demonstrate that no asbestos is present in the material. Such tests shall include analysis of 3 bulk samples of each homogeneous area of PACM collected in a randomly distributed manner. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute for Standards and Technology (NIST) of the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally-recognized round robin testing program.

(5) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain thermal system insulation and surfacing ACM/PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed.

(6) Signs. (i) Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by paragraph (e) of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(ii) The warning signs required by (k)(6) of this section shall bear the following information.

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTION CLOTHING ARE REQUIRED IN THIS AREA

(7) Labels. (i) Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers. Where feasible, installed asbestos products shall contain a visible label.

(ii) Labels shall be printed in large, bold letters on a contrasting background.

(iii) Labels shall be used in accordance with the requirements of 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard, and shall contain the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

(iv) [Reserved]

(v) Labels shall contain a warning statement against breathing asbestos fibers.

(vi) The provisions for labels required by paragraphs (k)(2)(i) through (k)(2)(iii) do not apply where:

(A) Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that, during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released, or

(B) Asbestos is present in a product in concentrations less than 1.0 percent by weight.

(vii) When a building owner/or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by paragraph (k)(5) of this section may be posted in lieu of labels so long as they contain information required for labelling.

(8) Employee information and training. (i) The employer shall, at no cost to the employee, institute a training program for all employees who install asbestos containing products and for all employees who perform Class I through IV asbestos operations, and shall ensure their participation in the program.

(ii) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter.

(iii) Training for Class I and II operations shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C.). For employers whose Class II work with asbestos-containing material involves only the removal and/or disturbance of one generic category of building material, such as roofing materials, flooring materials, siding materials or transite panels, instead, such employer is required to train employees who perform such work by providing a training course which includes as a minimum all the elements included in paragraph (k)(8)(vi) of this section and in addition, the specific work practices and engineering controls set forth in paragraph (g) which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours.

(iv) Training for Class III employees shall be the equivalent in curriculum and training method to the 16-hour Operations and Maintenance course developed by EPA for maintenance and custodial workers who conduct activities that will result in the disturbance of ACM. [See 40 CFR 763.92(a)(2)]. Such course shall include "hands-on" training in the use of respiratory protection and work practices and shall take at least 16 hours.

(v) Training for employees performing Class IV operations shall be the equivalent in curriculum and training method to the awareness training course developed by EPA for maintenance and custodial workers who work in buildings containing asbestos-containing material. [See 40 CFR 763.92 (a)(1)]. Such course shall include available information concerning the locations of PACM and ACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such a course shall take at least 2 hours.

(vi) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in paragraph (k)(8)(iii) of this section, the employer shall ensure that each such employee is informed of the following:

(A) Methods of recognizing asbestos, including the requirement in paragraph (k)(1) of this section to presume that certain building materials contain asbestos;

(B) The health effects associated with asbestos exposure;

(C) The relationship between smoking and asbestos in producing lung cancer;

(D) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls

and procedures; including where Class III and IV work is performed, the contents of "Managing Asbestos In Place (EPA 20T–2003, July 1990) or its equivalent in content.

(E) The purpose, proper use, fitting instructions, and limitations of respirators as required by 29 CFR 1910.134;

(F) The appropriate work practices for performing the asbestos job;

(G) Medical surveillance program requirements; and

(H) The content of this standard, including appendices.

(I) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to this section, to comply with this requirement.

(J) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(9) Access to training materials. (i) The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

(ii) The employer shall provide to the Assistant Secretary and the Director, upon request, all information and training materials relating to the employee information and training program.

(iii) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89–1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J to this section.

(l) Housekeeping—(1) Vacuuming. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers.

(3) Care of asbestos-containing flooring material. (i) All vinyl and asphalt flooring material shall be maintained in accordance with this paragraph unless the building/facility owner demonstrates, pursuant to paragraph (g) of this section that the flooring does not contain asbestos.

(i) Sanding of flooring material is prohibited.

(ii) Stripping of finishes shall be conducted using low abrasion pads at speed lower than 300 rpm and wet methods.

(iii) Burnishing or dry buffing may be performed only on flooring which has sufficient finish so that the pad cannot contact the flooring material.

(4) Dust and debris in an area containing accessible thermal system insulation or surfacing material or visibly deteriorated ACM:

(i) shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

(ii) shall be promptly clean up and disposed in leak tight containers.

(m) Medical surveillance—(1) General—(i) Employees covered. The employer shall institute a medical surveillance program for all employees who for a combined total of 30 or more days per year are engaged in Class I, II and III work or are exposed at or above the permissible exposure limit or excursion limit, and for employees who wear negative pressure respirators pursuant to the requirements of this section.

(ii) Examination by a physician. (A) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.

(B) Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(2) Medical examinations and consultations-(i) Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (m)(1)(i) of this section on the following schedules:

(A) Prior to assignment of the employee to an area where negative-pressure respirators are worn;

(B) When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure for 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

(C) And at least annually thereafter.

(D) If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician.

(E) Exception: No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with this paragraph within the past 1-year period.

(ii) Content. Medical examinations made available pursuant to paragraphs (m)(2)(i)(A) through (m)(2)(i)(C) of this section shall include:

(A) A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.

(B) On initial examination, the standardized questionnaire contained in Part 1 of Appendix D to this section, and, on annual examination, the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section.

(C) A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV(1)). Interpretation and classification of chest shall be conducted in accordance with Appendix E to this section.

(D) Any other examinations or tests deemed necessary by the examining physician.

(3) Information provided to the physician. The employer shall provide the following information to the examining physician:

(i) A copy of this standard and Appendices D, E, G, and I to this section;

(ii) A description of the affected employee's duties as they relate to the employee's exposure;

(iii) The employee's representative exposure level or anticipated exposure level;

(iv) A description of any personal protective and respiratory equipment used or to be used; and

(v) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(4) Physician's written opinion. (i) The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

(A) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of

material health impairment from exposure to asbestos;

(B) Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and

(C) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

(D) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(ii) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(iii) The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

(n) Recordkeeping—(1) Objective data relied on pursuant to paragraph (f) to this section. (i) Where the employer has relied on objective data that demonstrate that products made from or containing asbestos are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling to satisfy the requirements of paragraph (f), the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(ii) The record shall include at least the following information:

(A) The product qualifying for exemption;

(B) The source of the objective data;

(C) The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

(D) A description of the operation exempted and how the data support the exemption; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(iii) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(2) Exposure measurements. (i) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in paragraph (f) of this section. NOTE: The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

(ii) This record shall include at least the following information:

(A) The date of measurement;

(B) The operation involving exposure to asbestos that is being monitored;

(C) Sampling and analytical methods used and evidence of their accuracy;

(D) Number, duration, and results of samples taken;

(E) Type of protective devices worn, if any; and

(F) Name, social security number, and exposure of the employees whose exposures are represented.

(iii) The employer shall maintain this record for at least thirty (30) years, in accordance with 29 CFR 1910.20.

(3) Medical surveillance. (i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by paragraph (m) of this section, in accordance with 29 CFR 1910.20.

(ii) The record shall include at least the following information:

(A) The name and social security number of the employee;

(B) A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.

(C) Physician's written opinions;

(D) Any employee medical complaints related to exposure to asbestos; and

(E) A copy of the information provided to the physician as required by paragraph (m) of this section.

(iii) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with 29 CFR 1910.20.

(4) Training records. The employer shall maintain all employee training records for one 1 year beyond the last date of employment by that employer.

(5) Data to Rebut PACM. Where the building owner and employer have relied on data to demonstrate that PACM is not asbestos-containing, such data shall be maintained far as long as they are relied upon to rebut the presumption.

(6) Records of Required Notifications. Where the building owner has communicated and received information concerning the identification, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the building owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities.

(7) Availability. (i) The employer, upon written request, shall make all records required to be maintained by this section available to the Assistant Secretary and the Director for examination and copying.

(ii) The employer, upon request, shall make any exposure records required by paragraphs (f) and (n) of this section available for examination and copying to affected employees, former employees, designated representatives and the Assistant Secretary, in accordance with 29 CFR 1910.20(a) through (e) and (g) through (i).

(iii) The employer, upon request, shall make employee medical records required by paragraphs (m) and (n) of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.20.

(8) Transfer of records. (i) The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.20 (h).

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director.

(o) Competent person—(1) General. On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Subpart C, General Safety and Health Provisions for Construction (29 CFR 1926.20 through 1926.32).

(2) Required Inspections by the Competent Person. Section 1926.20(b)(2) which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

(3) Additional Inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in paragraph (p)(3)(i) and (ii) of this section. For Class I jobs, on-site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II and III jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(i) On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with paragraph (g)(1) of

this section shall perform or supervise the following duties, as applicable:

(A) Set up the regulated area, enclosure, or other containment;

(B) Ensure (by on-site inspection) the integrity of the enclosure or containment;

(C) Set up procedures to control entry to and exit from the enclosure and/or area;

(D) Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by paragraph (f) of this section;

(E) Ensure that employees working within the enclosure and/or using glove bags wear protective clothing and respirators as required by paragraphs (h) and (i) of this section;

(F) Ensure through on-site supervision, that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

(G) Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in paragraph (j) of this section;

(H) Ensure that though on-site inspection engineering controls are functioning properly and employees are using proper work practices; and,

(I) Ensure that notification requirement in paragraph (f)(6) of this section are met.

(4) Training for the competent person. (i) For Class I, and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors, such as a course conducted by an EPA or state-approved training provider, certified by the EPA or a State, or an course equivalent in stringency, content and length.

(ii) For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course equivalent in curriculum and training method to the 16-hour Operations and Maintenance course developed by EPA for maintenance and custodial workers [See 40 CFR 763.92(a)(2)], or its equivalent in stringency, content and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of paragraph (o)(4)(i) of this section.

(p) Appendices. (1) Appendices A, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(2) Appendices B, F, H, I, J, and K to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(q) Dates. (1) This standard shall become effective October 11, 1994.

(2) The provisions of 29 CFR 1926.58 remain in effect until the start-up dates of the equivalent provisions of this standard.

(3) Start-up dates: All obligations of this standard commence on the effective date except as follows:

(i) Methods of compliance. The engineering and work practice controls required by paragraph (g) of this section shall be implemented as soon as possible but no later than April 10, 1995.

(ii) Respiratory protection. Respiratory protection required by paragraph (h) of this section shall be provided as soon as possible but no later than February 8, 1995.

(iii) Hygiene facilities and practices for employees. Hygiene facilities and practices required by paragraph (j) of this section shall be provided as soon as possible but no later than February 8, 1995.

(iv) Communication of hazards. Identification, notification, labeling and sign posting, and training required by paragraph (k) of this section shall be provided as soon as possible, but no later than April 10, 1995.

(v) Housekeeping. Housekeeping practices and controls required by paragraph (l) of this section shall be provided as soon as possible, but no later than January 9, 1995.

(vi) Medical surveillance required by paragraph (m) of this section shall be provided as soon as possible, but no later than January 9, 1995.

(vii) The designation and training of competent persons required by paragraph (o) of this section shall completed as soon as possible but no later than April 10, 1995.

(Approved by the Office of Management and Budget under control number 1218–0133)

Appendix A to § 1926.1101 [Amended]

4. Appendix A to § 1926.1101 is amended by the revising the second sentence of the introductory paragraph to read as follows:

* * * The sampling and analytical methods described below represent the elements of the available monitoring methods (such as Appendix B of this regulation, the most current version of the OSHA method ID–160, or the most current version of the NIOSH Method 7400). * * *

Appendix A to § 1926.1101 [Amended]

5. Paragraph 2. of the section of Appendix A to § 1926.1101 entitled *Sampling and Analytical Procedure* is amended by adding the following sentence to the end:

* * * * *

2.* * * Do not reuse or reload cassettes for asbestos sample collection.

* * * * *

Appendix A to § 1926.1101 [Amended]

6. Paragraph 11 of the section of Appendix A to § 1926.1101 entitled *Sampling and Analytical Procedure* is revised to read as follows:

* * * * *

11. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

* * * * *

Appendix A to § 1926.1101 [Amended]

7. Paragraph 2 of the section of Appendix A to § 1926.1101 entitled *Quality Control Procedures* is redesignated as paragraph 2a and by adding paragraph 2b to read as follows:

* * * * *

2. * * *

b. All laboratories should also participate in a national sample testing scheme such as the Proficiency Analytical Testing Program (PAT), or the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

* * * * *

E. Appendix B of § 1926.1101 is revised to read as follows:

Appendix B to § 1926.1101. Sampling and Analysis. Non-mandatory

	Air
Matrix:	
OSHA Permissible Exposure Limits:	
Time Weighted Average	0.1 fiber/cc
Excursion Level (30 minutes)	1.0 fiber/cc
Collection Procedure:	
A known volume of air is drawn through a 25-mm diameter cassette containing a mixed-cellulose ester filter. The cassette must be equipped with an electrically conductive 50-mm extension cowl. The sampling time and rate are chosen to give a fiber density of between 100 to 1,300 fibers/mm2 on the filter.	
Recommended Sampling Rate	0.5 to 5.0 liters/minute (L/min)
Recommended Air Volumes:	
Minimum	25 L
Maximum	2,400 L

Analytical Procedure:

A portion of the sample filter is cleared and prepared for asbestos fiber counting by Phase Contrast Microscopy (PCM) at 400X.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL–OSHA. Similar products from other sources can be substituted.

1. Introduction

This method describes the collection of airborne asbestos fibers using calibrated sampling pumps with mixed-cellulose ester (MCE) filters and analysis by phase contrast microscopy (PCM). Some terms used are unique to this method and are defined below *Asbestos:* A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, crocidolite, amosite (cummingtonite-grunerite asbestos), tremolite asbestos, actinolite asbestos, anthophyllite asbestos, and any of these minerals that have been chemically treated and/or altered. The precise chemical formulation of each species will vary with the location from which it was mined. Nominal compositions are listed:

Chrysotile	$Mg_3Si_2O_5(OH)_4$
Crocidolite	$Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$
Amosite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-actinolite.	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos which meets the criteria specified below for a fiber

Aspect Ratio: The ratio of the length of a fiber to it's diameter (e.g. 3:1, 5:1 aspect ratios).

Cleavage Fragments: Mineral particles formed by comminution of minerals, especially those characterized by parallel sides and a moderate aspect ratio (usually less than 20:1).

Detection Limit: The number of fibers necessary to be 95% certain that the result is greater than zero.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from the fiber count because they do not appear to be asbestos.

Fiber: A particle that is 5 µm or longer, with a length-to-width ratio of 3 to 1 or longer.

Field: The area within the graticule circle that is superimposed on the microscope image.

Set: The samples which are taken, submitted to the laboratory, analyzed, and for which, interim or final result reports are generated.

Tremolite, Anthophyllite, and Actinolite The non-asbestos form of these minerals which meet the definition of a fiber. It includes any of these minerals that have been chemically treated and/or altered.

Walton-Beckett Graticule: An eyepiece graticule specifically designed for asbestos fiber counting. It consists of a circle with a projected diameter of 100±2 µm (area of about 0.00785 mm²) with a crosshair having tic-marks at 3-µm intervals in one direction and 5-µm in the orthogonal direction. There are marks around the periphery of the circle to demonstrate the proper sizes and shapes of fibers. This design is reproduced in Figure 2. The disk is placed in one of the microscope eyepieces so that the design is superimposed on the field of view.

1.1. History

Early surveys to determine asbestos exposures were conducted using impinger counts of total dust with the counts expressed as million particles per cubic foot. The British Asbestos Research Council recommended filter membrane counting in 1969. In July 1969, the Bureau of Occupational Safety and Health published a filter membrane method for counting asbestos fibers in the United States. This method was refined by NIOSH and published as P & CAM 239. On May 29, 1971, OSHA specified filter membrane sampling with phase contrast counting for evaluation of asbestos exposures at work sites in the United States. The use of this technique was again required by OSHA in 1986. Phase contrast microscopy has continued to be the method of choice for the measurement of occupational exposure to asbestos.

1.2. Principle

Air is drawn through a MCE filter to capture airborne asbestos fibers. A wedge shaped portion of the filter is removed, placed on a glass microscope slide and made transparent. A measured area (field) is viewed by PCM. All the fibers meeting a defined criteria for asbestos are counted and considered a measure of the airborne asbestos concentration.

1.3. Advantages and Disadvantages

There are four main advantages of PCM over other methods:

(1) The technique is specific for fibers. Phase contrast is a fiber counting technique which excludes non-fibrous particles from the analysis.

(2) The technique is inexpensive and does not require specialized knowledge to carry out the analysis for total fiber counts.

(3) The analysis is quick and can be performed on-site for rapid determination of air concentrations of asbestos fibers.

(4) The technique has continuity with historical epidemiological studies so that estimates of expected disease can be inferred from long-term determinations of asbestos exposures.

The main disadvantage of PCM is that it does not positively identify asbestos fibers. Other fibers which are not asbestos may be included in the count unless differential counting is performed. This requires a great deal of experience to adequately differentiate asbestos from non-asbestos fibers. Positive identification of asbestos must be performed by polarized light or electron microscopy techniques. A further disadvantage of PCM is that the smallest visible fibers are about 0.2 µm in diameter while the finest asbestos fibers may be as small as 0.02 µm in diameter. For some exposures, substantially more fibers may be present than are actually counted.

1.4. Workplace Exposure

Asbestos is used by the construction industry in such products as shingles, floor tiles, asbestos cement, roofing felts, insulation and acoustical products. Non-construction uses include brakes, clutch facings, paper, paints, plastics, and fabrics. One of the most significant exposures in the workplace is the removal and encapsulation of asbestos in schools, public buildings, and homes. Many workers have the potential to be exposed to asbestos during these operations.

About 95% of the asbestos in commercial use in the United States is chrysotile. Crocidolite and amosite make up most of the remainder. Anthophyllite and tremolite or

actinolite are likely to be encountered as contaminants in various industrial products.

1.5. Physical Properties

Asbestos fiber possesses a high tensile strength along its axis, is chemically inert, non-combustible, and heat resistant. It has a high electrical resistance and good sound absorbing properties. It can be weaved into cables, fabrics or other textiles, and also matted into asbestos papers, felts, or mats.

2. Range and Detection Limit

2.1. The ideal counting range on the filter is 100 to 1,300 fibers/mm². With a Walton-Beckett graticule this range is equivalent to 0.8 to 10 fibers/field. Using NIOSH counting statistics, a count of 0.8 fibers/field would give an approximate coefficient of variation (CV) of 0.13.

2.2. The detection limit for this method is 4.0 fibers per 100 fields or 5.5 fibers/mm². This was determined using an equation to estimate the maximum CV possible at a specific concentration (95% confidence) and a Lower Control Limit of zero. The CV value was then used to determine a corresponding concentration from historical CV vs fiber relationships. As an example:

Lower Control Limit (95% Confidence) = AC—1.645(CV)(AC)

Where:

AC=Estimate of the airborne fiber concentration (fibers/cc) Setting the Lower Control Limit=0 and solving for CV:

0=AC—1.645(CV)(AC)

CV=0.61

This value was compared with CV vs. count curves. The count at which CV = 0.61 for Leidel-Busch counting statistics or for an OSHA Salt Lake Technical Center (OSHA–SLTC) CV curve (see Appendix A for further information) was 4.4 fibers or 3.9 fibers per 100 fields, respectively. Although a lower detection limit of 4 fibers per 100 fields is supported by the OSHA–SLTC data, both data sets support the 4.5 fibers per 100 fields value.

3. Method Performance—Precision and Accuracy

Precision is dependent upon the total number of fibers counted and the uniformity of the fiber distribution on the filter. A general rule is to count at least 20 and not more than 100 fields. The count is discontinued when 100 fibers are counted, provided that 20 fields have already been counted. Counting more than 100 fibers results in only a small gain in precision. As the total count drops below 10 fibers, an accelerated loss of precision is noted.

At this time, there is no known method to determine the absolute accuracy of the asbestos analysis. Results of samples prepared through the Proficiency Analytical Testing (PAT) Program and analyzed by the OSHA–SLTC showed no significant bias when compared to PAT reference values. The PAT samples were analyzed from 1987 to 1989 (N=36) and the concentration range was from 120 to 1,300 fibers/mm².

4. Interferences

Fibrous substances, if present, may interfere with asbestos analysis.

Some common fibers are:

fiber glass	perlite veins
anhydrite plant fibers	
gypsum	some synthetic fibers
membrane structures	sponge spicules and diatoms
microorganisms	wollastonite

The use of electron microscopy or optical tests such as polarized light, and dispersion staining may be used to differentiate these materials from asbestos when necessary.

5. Sampling

5.1. Equipment

5.1.1. Sample assembly (The assembly is shown in Figure 3). Conductive filter holder consisting of a 25-mm diameter, 3-piece cassette having a 50-mm long electrically conductive extension cowl. Backup pad, 25-mm, cellulose. Membrane filter, mixed-cellulose ester (MCE), 25-mm, plain, white, 0.8- to 1.2-μm pore size.

Notes:

(a) DO NOT RE-USE CASSETTES.

(b) Fully conductive cassettes are required to reduce fiber loss to the sides of the cassette due to electrostatic attraction.

(c) Purchase filters which have been selected by the manufacturer for asbestos counting or analyze representative filters for fiber background before use. Discard the filter lot if more than 4 fibers/100 fields are found.

(d) To decrease the possibility of contamination, the sampling system (filter-backup pad-cassette) for asbestos is usually preassembled by the manufacturer.

5.1.2. Gel bands for sealing cassettes.

5.1.3. Sampling pump.

Each pump must be a battery operated, self-contained unit small enough to be placed on the monitored employee and not interfere with the work being performed. The pump must be capable of sampling at 2.5 liters per minute (L/min) for the required sampling time.

5.1.4. Flexible tubing, 6-mm bore.

5.1.5. Pump calibration.

Stopwatch and bubble tube/burette or electronic meter.

5.2. Sampling Procedure

5.2.1. Seal the point where the base and cowl of each cassette meet (see Figure 3) with a gel band or tape.

5.2.2. Charge the pumps completely before beginning.

5.2.3. Connect each pump to a calibration cassette with an appropriate length of 6-mm bore plastic tubing. Do not use luer connectors—the type of cassette specified above has built-in adapters.

5.2.4. Select an appropriate flow rate for the situation being monitored. The sampling flow rate must be between 0.5 and 5.0 L/min for personal sampling and is commonly set between 1 and 2 L/min. Always choose a flow rate that will not produce overloaded filters.

5.2.5. Calibrate each sampling pump before and after sampling with a calibration cassette in-line (Note: This calibration cassette should be from the same lot of cassettes used for sampling). Use a primary standard (e.g. bubble burette) to calibrate each pump. If possible, calibrate at the sampling site.

Note: If sampling site calibration is not possible, environmental influences may affect the flow rate. The extent is dependent on the type of pump used. Consult with the pump manufacturer to determine dependence on environmental influences. If the pump is affected by temperature and pressure changes, use the formula in Appendix B to calculate the actual flow rate.

5.2.6. Connect each pump to the base of each sampling cassette with flexible tubing. Remove the end cap of each cassette and take each air sample open face. Assure that each sample cassette is held open side down in the employee's breathing zone during sampling. The distance from the nose/mouth of the employee to the cassette should be about 10 cm. Secure the cassette on the collar or lapel of the employee using spring clips or other similar devices.

5.2.7. A suggested minimum air volume when sampling to determine TWA compliance is 25 L. For Excursion Limit (30 min sampling time) evaluations, a minimum air volume of 48 L is recommended.

5.2.8. The most significant problem when sampling for asbestos is overloading the filter with non-asbestos dust. Suggested maximum air sample volumes for specific environments are:

Environment	Air Vol. (L)
Asbestos removal operations (visible dust).	100.
Asbestos removal operations (little dust).	240.
Office environments	400 to 2,400.

CAUTION: Do not overload the filter with dust. High levels of non-fibrous dust particles may obscure fibers on the filter and lower the count or make counting impossible. If more than about 25 to 30% of the field area is obscured with dust, the result may be biased low. Smaller air volumes may be necessary when there is excessive non-asbestos dust in the air.

While sampling, observe the filter with a small flashlight. If there is a visible layer of dust on the filter, stop sampling, remove and seal the cassette, and replace with a new sampling assembly. The total dust loading should not exceed 1 mg.

5.2.9. Blank samples are used to determine if any contamination has occurred during sample handling. Prepare two blanks for the first 1 to 20 samples. For sets containing greater than 20 samples, prepare blanks as 10% of the samples. Handle blank samples in the same manner as air samples with one exception: Do not draw any air through the blank samples. Open the blank cassette in the place where the sample cassettes are mounted on the employee. Hold it open for about 30 seconds. Close and seal the cassette appropriately. Store blanks for shipment with the sample cassettes.

5.2.10. Immediately after sampling, close and seal each cassette with the base and plastic plugs. Do not touch or puncture the filter membrane as this will invalidate the analysis.

5.2.11. Attach a seal (OSHA–21 or equivalent) around each cassette in such a way as to secure the end cap plug and base plug. Tape the ends of the seal together since the seal is not long enough to be wrapped end-to-end. Also wrap tape around the cassette at each joint to keep the seal secure.

5.3. Sample Shipment

5.3.1. Send the samples to the laboratory with paperwork requesting asbestos analysis. List any known fibrous interferences present during sampling on the paperwork. Also, note the workplace operation(s) sampled.

5.3.2. Secure and handle the samples in such that they will not rattle during shipment nor be exposed to static electricity. Do not ship samples in expanded polystyrene peanuts, vermiculite, paper shreds, or excelsior. Tape sample cassettes to sheet bubbles and place in a container that will cushion the samples without rattling.

5.3.3. To avoid the possibility of sample contamination, always ship bulk samples in separate mailing containers.

6. Analysis

6.1. Safety Precautions

6.1.1. Acetone is extremely flammable and precautions must be taken not to ignite it. Avoid using large containers or quantities of acetone. Transfer the solvent in a ventilated laboratory hood. Do not use acetone near any open flame. For generation of acetone vapor, use a spark free heat source.

6.1.2. Any asbestos spills should be cleaned up immediately to prevent dispersal of fibers. Prudence should be exercised to avoid contamination of laboratory facilities or exposure of personnel to asbestos. Asbestos spills should be cleaned up with wet methods and/or a High Efficiency Particulate-Air (HEPA) filtered vacuum.

CAUTION: Do not use a vacuum without a HEPA filter—It will disperse fine asbestos fibers in the air.

6.2. Equipment

6.2.1. Phase contrast microscope with binocular or trinocular head.

6.2.2. Widefield or Huygenian 10X eyepieces (NOTE: The eyepiece containing the graticule must be a focusing eyepiece. Use a 40X phase objective with a numerical aperture of 0.65 to 0.75).

6.2.3. Kohler illumination (if possible) with green or blue filter.

6.2.4. Walton-Beckett Graticule, type G–22 with 100 ±2 µm projected diameter.

6.2.5. Mechanical stage. A rotating mechanical stage is convenient for use with polarized light.

6.2.6. Phase telescope.

6.2.7. Stage micrometer with 0.01-mm subdivisions.

6.2.8. Phase-shift test slide, mark II (Available from PTR optics Ltd., and also McCrone).

6.2.9. Precleaned glass slides, 25 mm X 75 mm. One end can be frosted for convenience in writing sample numbers, etc., or paste-on labels can be used.

6.2.10. Cover glass #1½.

6.2.11. Scalpel (#10, curved blade).

6.2.12. Fine tipped forceps.

6.2.13. Aluminum block for clearing filter (see Appendix D and Figure 4).

6.2.14. Automatic adjustable pipette, 100- to 500-µL.

6.2.15. Micropipette, 5 µL.

6.3. Reagents

6.3.1. Acetone (HPLC grade).

6.3.2. Triacetin (glycerol triacetate).

6.3.3. Lacquer or nail polish.

6.4. Standard Preparation

A way to prepare standard asbestos samples of known concentration has not been developed. It is possible to prepare replicate samples of nearly equal concentration. This has been performed through the PAT program. These asbestos samples are distributed by the AIHA to participating laboratories.

Since only about one-fourth of a 25-mm sample membrane is required for an asbestos count, any PAT sample can serve as a "standard" for replicate counting.

6.5. Sample Mounting

Note: See Safety Precautions in Section 6.1. before proceeding. The objective is to produce samples with a smooth (non-grainy) background in a medium with a refractive index of approximately 1.46. The technique below collapses the filter for easier focusing and produces permanent mounts which are useful for quality control and interlaboratory comparison.

An aluminum block or similar device is required for sample preparation.

6.5.1. Heat the aluminum block to about 70°C. The hot block should not be used on any surface that can be damaged by either the heat or from exposure to acetone.

6.5.2. Ensure that the glass slides and cover glasses are free of dust and fibers.

6.5.3. Remove the top plug to prevent a vacuum when the cassette is opened. Clean the outside of the cassette if necessary. Cut the seal and/or tape on the cassette with a razor blade. Very carefully separate the base from the extension cowl, leaving the filter and backup pad in the base.

6.5.4. With a rocking motion cut a triangular wedge from the filter using the scalpel. This wedge should be one-sixth to one-fourth of the filter. Grasp the filter wedge with the forceps on the perimeter of the filter which was clamped between the cassette pieces. DO NOT TOUCH the filter with your finger. Place the filter on the glass slide sample side up. Static electricity will usually keep the filter on the slide until it is cleared.

6.5.5. Place the tip of the micropipette containing about 200 µL acetone into the aluminum block. Insert the glass slide into the receiving slot in the aluminum block. Inject the acetone into the block with slow, steady pressure on the plunger while holding the pipette firmly in place. Wait 3 to 5 seconds for the filter to clear, then remove the pipette and slide from the aluminum block.

6.5.6. Immediately (less than 30 seconds) place 2.5 to 3.5 µL of triacetin on the filter (NOTE: Waiting longer than 30 seconds will result in increased index of refraction and decreased contrast between the fibers and the preparation. This may also lead to separation of the cover slip from the slide).

6.5.7. Lower a cover slip gently onto the filter at a slight angle to reduce the possibility of forming air bubbles. If more than 30 seconds have elapsed between acetone exposure and triacetin application, glue the edges of the cover slip to the slide with lacquer or nail polish.

6.5.8. If clearing is slow, warm the slide for 15 min on a hot plate having a surface temperature of about 50°C to hasten clearing. The top of the hot block can be used if the slide is not heated too long.

6.5.9. Counting may proceed immediately after clearing and mounting are completed.

6.6. Sample Analysis

Completely align the microscope according to the manufacturer's instructions. Then, align the microscope using the following general alignment routine at the beginning of every counting session and more often if necessary.

6.6.1. Alignment

(1) Clean all optical surfaces. Even a small amount of dirt can significantly degrade the image.

(2) Rough focus the objective on a sample.

(3) Close down the field iris so that it is visible in the field of view. Focus the image of the iris with the condenser focus. Center the image of the iris in the field of view.

(4) Install the phase telescope and focus on the phase rings. Critically center the rings. Misalignment of the rings results in astigmatism which will degrade the image.

(5) Place the phase-shift test slide on the microscope stage and focus on the lines. The analyst must see line set 3 and should see at least parts of 4 and 5 but, not see line set 6 or 6. A microscope/microscopist combination which does not pass this test may not be used.

6.6.2. Counting Fibers

(1) Place the prepared sample slide on the mechanical stage of the microscope. Position the center of the wedge under the objective lens and focus upon the sample.

(2) Start counting from one end of the wedge and progress along a radial line to the other end (count in either direction from perimeter to wedge tip). Select fields randomly, without looking into the eyepieces, by slightly advancing the slide in one direction with the mechanical stage control.

(3) Continually scan over a range of focal planes (generally the upper 10 to 15 µm of the filter surface) with the fine focus control during each field count. Spend at least 5 to 15 seconds per field.

(4) Most samples will contain asbestos fibers with fiber diameters less than 1 µm. Look carefully for faint fiber images. The small diameter fibers will be very hard to see. However, they are an important contribution to the total count.

(5) Count only fibers equal to or longer than 5 µm. Measure the length of curved fibers along the curve.

(6) Count fibers which have a length to width ratio of 3:1 or greater.

(7) Count all the fibers in at least 20 fields. Continue counting until either 100 fibers are counted or 100 fields have been viewed; whichever occurs first. Count all the fibers in the final field.

(8) Fibers lying entirely within the boundary of the Walton-Beckett graticule

field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle shall receive a count of ½. Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area. If a fiber touches the circle, it is considered to cross the line.

(9) Count bundles of fibers as one fiber unless individual fibers can be clearly identified and each individual fiber is clearly not connected to another counted fiber. See Figure 2 for counting conventions.

(10) Record the number of fibers in each field in a consistent way such that filter non-uniformity can be assessed.

(11) Regularly check phase ring alignment.

(12) When an agglomerate (mass of material) covers more than 25% of the field of view, reject the field and select another. Do not include it in the number of fields counted.

(13) Perform a "blind recount" of 1 in every 10 filter wedges (slides). Re-label the slides using a person other than the original counter.

6.7. Fiber Identification

As previously mentioned in Section 1.3., PCM does not provide positive confirmation of asbestos fibers. Alternate differential counting techniques should be used if discrimination is desirable. Differential counting may include primary discrimination based on morphology, polarized light analysis of fibers, or modification of PCM data by Scanning Electron or Transmission Electron Microscopy.

A great deal of experience is required to routinely and correctly perform differential counting. It is discouraged unless it is legally necessary. Then, only if a fiber is obviously not asbestos should it be excluded from the count. Further discussion of this technique can be found in reference 8.10.

If there is a question whether a fiber is asbestos or not, follow the rule:

"WHEN IN DOUBT, COUNT."

6.8. Analytical Recommendations—Quality Control System

6.8.1. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos or an equivalent course.

6.8.2. Each laboratory engaged in asbestos counting shall set up a slide trading arrangement with at least two other laboratories in order to compare performance and eliminate inbreeding of error. The slide exchange occurs at least semiannually. The round robin results shall be posted where all analysts can view individual analyst's results.

6.8.3. Each laboratory engaged in asbestos counting shall participate in the Proficiency Analytical Testing Program, the Asbestos Analyst Registry or equivalent.

6.8.4. Each analyst shall select and count prepared slides from a "slide bank". These are quality assurance counts. The slide bank shall be prepared using uniformly distributed samples taken from the workload. Fiber densities should cover the entire range routinely analyzed by the laboratory. These slides are counted blind by all counters to establish an original standard deviation. This historical distribution is compared with the quality assurance counts. A counter must have 95% of all quality control samples counted within three standard deviations of the historical mean. This count is then integrated into a new historical mean and standard deviation for the slide.

The analyses done by the counters to establish the slide bank may be used for an interim quality control program if the data are treated in a proper statistical fashion.

7. Calculations

7.1. Calculate the estimated airborne asbestos fiber concentration on the filter sample using the following formula:

$$AC = \frac{\left[\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right)\right] \times ECA}{1000 \times FR \times T \times MFA}$$

where:

AC=Airborne fiber concentration

FB=Total number of fibers greater than 5 μm counted

FL=Total number of fields counted on the filter

BFB=Total number of fibers greater than 5 μm counted in the blank

BFL=Total number of fields counted on the blank

ECA=Effective collecting area of filter (385 mm² nominal for a 25-mm filter.)

FR=Pump flow rate (L/min)

MFA=Microscope count field area (mm²). This is 0.00785 mm² for a Walton-Beckett Graticule.

T=Sample collection time (min)

1,000=Conversion of L to cc

Note: The collection area of a filter is seldom equal to 385 mm². It is appropriate for laboratories to routinely monitor the exact diameter using an inside micrometer. The collection area is calculated according to the formula:

$Area = \pi(d/2)^2$

7.2. Short-Cut Calculation

Since a given analyst always has the same interpupillary distance, the number of fields per filter for a particular analyst will remain constant for a given size filter. The field size for that analyst is constant (i.e. the analyst is using an assigned microscope and is not changing the reticle).

For example, if the exposed area of the filter is always 385 mm² and the size of the field is always 0.00785 mm² the number of fields per filter will always be 49,000. In addition it is necessary to convert liters of air to cc. These three constants can then be combined such that ECA/(1,000×MFA)=49. The previous equation simplifies to:

$$AC = \frac{\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right) \times 49}{FR \times T}$$

7.3. Recount Calculations

As mentioned in step 13 of Section 6.6.2., a "blind recount" of 10% of the slides is performed. In all cases, differences will be observed between the first and second counts of the same filter wedge. Most of these differences will be due to chance alone, that is, due to the random variability (precision) of the count method. Statistical recount criteria enables one to decide whether observed differences can be explained due to chance alone or are probably due to systematic differences between analysts, microscopes, or other biasing factors.

The following recount criterion is for a pair of counts that estimate AC in fibers/cc. The criterion is given at the type-I error level. That is, there is 5% maximum risk that we will reject a pair of counts for the reason that one might be biased, when the large observed difference is really due to chance.

Reject a pair of counts if:

$$\left|\sqrt{AC_2} - \sqrt{AC_1}\right| > 2.78 \times \left(\sqrt{AC_{avg}}\right) \times CV_{FB}$$

Where:

AC_1=lower estimated airborne fiber concentration

AC_2=higher estimated airborne fiber concentration

AC_{avg}=average of the two concentration estimates

CV_{FB}=CV for the average of the two concentration estimates

If a pair of counts are rejected by this criterion then, recount the rest of the filters in the submitted set. Apply the test and reject any other pairs failing the test. Rejection shall include a memo to the industrial hygienist stating that the sample failed a statistical test for homogeneity and the true air concentration may be significantly different than the reported value.

7.4. Reporting Results

Report results to the industrial hygienist as fibers/cc. Use two significant figures. If multiple analyses are performed on a sample, an average of the results is to be reported unless any of the results can be rejected for cause.

8. References

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8.2. *Asbestos Research Council: The Measurement of Airborne Asbestos Dust by the Membrane Filter Method* (Technical Note), Asbestos Research Council, Rockdale, Lancashire, Great Britain, 1969.

8.3. Bayer, S.G., Zumwalde, R.D., Brown, T.A., *Equipment and Procedure for Mounting Millipore Filters and Counting Asbestos Fibers by Phase Contrast Microscopy*, Bureau of Occupational Health, U.S. Dept. of Health, Education and Welfare, Cincinnati, OH, 1969.

8.4. *NIOSH Manual of Analytical Methods*, 2nd ed., Vol. 1 (DHEW/NIOSH Pub. No. 77–157–A). National Institute for Occupational Safety and Health, Cincinnati, OH, 1977. pp. 239–1—239–21.

8.5. *Asbestos*, Code of Federal Regulations 29 CFR 1910.1001. 1971.

8.6. *Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite. Final Rule*, Federal Register 51:119 (20 June 1986). pp. 22612–22790.

8.7. *Asbestos, Tremolite, Anthophyllite, and Actinolite*, Code of Federal Regulations 1910.1001. 1988. pp. 711–752.

8.8. *Criteria for a Recommended Standard—Occupational Exposure to Asbestos* (DHEW/NIOSH Pub. No. HSM 72–10267), National Institute for Occupational Safety and Health, NIOSH, Cincinnati, OH, 1972. pp. III–1—III–24.

8.9. Leidel, N.A., Bayer, S.G., Zumwalde, R.D., Busch, K.A., *USPHS/NIOSH Membrane Filter Method for Evaluating Airborne Asbestos Fibers* (DHEW/NIOSH Pub. No. 79–127). National Institute for Occupational Safety and Health, Cincinnati, OH, 1979.

8.10. Dixon, W.C., *Applications of Optical Microscopy in Analysis of Asbestos and Quartz*, Analytical Techniques in Occupational Health Chemistry, edited by D.D. Dollberg and A.W. Verstuyft. Wash. D.C.: American Chemical Society, (ACS Symposium Series 120) 1980. pp. 13–41.

Quality Control

The OSHA asbestos regulations require each laboratory to establish a quality control program. The following is presented as an example of how the OSHA–SLTC constructed its internal CV curve as part of meeting this requirement. Data for the CV curve shown below is from 395 samples collected during OSHA compliance inspections and analyzed from October 1980 through April 1986.

Each sample was counted by 2 to 5 different counters independently of one another. The standard deviation and the CV statistic was calculated for each sample. This data was then plotted on a graph of CV vs. fibers/mm^2. A least squares regression was performed using the following equation:

$CV=\text{antilog}_{10}[A(\log_{10}(x))^2+B(\log_{10}(x))+C]$

where:

x=the number of fibers/mm^2

Application of least squares gave:

A=0.182205

B=0.973343

C=0.327499

Using these values, the equation becomes:

$CV=\text{antilog}_{10}[0.182205(\log_{10}(x))^2 - 0.973343(\log_{10}(x))+0.327499]$

Sampling Pump Flow Rate Corrections

This correction is used if a difference greater than 5% in ambient temperature and/or pressure is noted between calibration and sampling sites and the pump does not compensate for the differences.

$$Q_{act} = Q_{cal} \times \sqrt{\left(\frac{P_{cal}}{P_{act}}\right) \times \left(\frac{T_{act}}{T_{cal}}\right)}$$

Where:

Q_{act}=actual flow rate

Q_{cal}=calibrated flow rate (if a rotameter was used, the rotameter value)

P_{cal}=uncorrected air pressure at calibration

P_{act}=uncorrected air pressure at sampling site

T_{act}=temperature at sampling site (K)

T_{cal}=temperature at calibration (K)

Walton-Beckett Graticule

When ordering the Graticule for asbestos counting, specify the exact disc diameter needed to fit the ocular of the microscope and the diameter (mm) of the circular counting area. Instructions for measuring the dimensions necessary are listed:

(1) Insert any available graticule into the focusing eyepiece and focus so that the graticule lines are sharp and clear.

(2) Align the microscope.

(3) Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.

(4) Measure the magnified grid length, PL (μm), using the stage micrometer.

(5) Remove the graticule from the microscope and measure its actual grid length, AL (mm). This can be accomplished by using a mechanical stage fitted with verniers, or a jeweler's loupe with a direct reading scale.

(6) Let D=100 μm. Calculate the circle diameter, d_c (mm), for the Walton-Beckett graticule and specify the diameter when making a purchase:

$$d_c = \frac{AL \times D}{PL}$$

Example: If PL=108 μm, AL=2.93 mm and D=100 μm, then,

$$d_c = \frac{2.93 \times 100}{108} = 2.71\text{mm}$$

(7) Each eyepiece-objective-reticle combination on the microscope must be calibrated. Should any of the three be changed (by zoom adjustment, disassembly, replacement, etc.), the combination must be recalibrated. Calibration may change if interpupillary distance is changed.

Measure the field diameter, D (acceptable range: 100±2 μm) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine the field area (mm^2).

Field Area=$\pi(D/2)^2$

If D=100 μm=0.1 mm, then

Field Area=$\pi(0.1\text{ mm}/2)^2$=0.00785 mm^2

The Graticule is available from: Graticules Ltd., Morley Road, Tonbridge TN9 IRN, Kent, England (Telephone 011–44–732–359061). Also available from PTR Optics Ltd., 145 Newton Street, Waltham, MA 02154 [telephone (617) 891–6000] or McCrone Accessories and Components, 2506 S. Michigan Ave., Chicago, IL 60616 [phone (312)-842–7100]. The graticule is custom made for each microscope.

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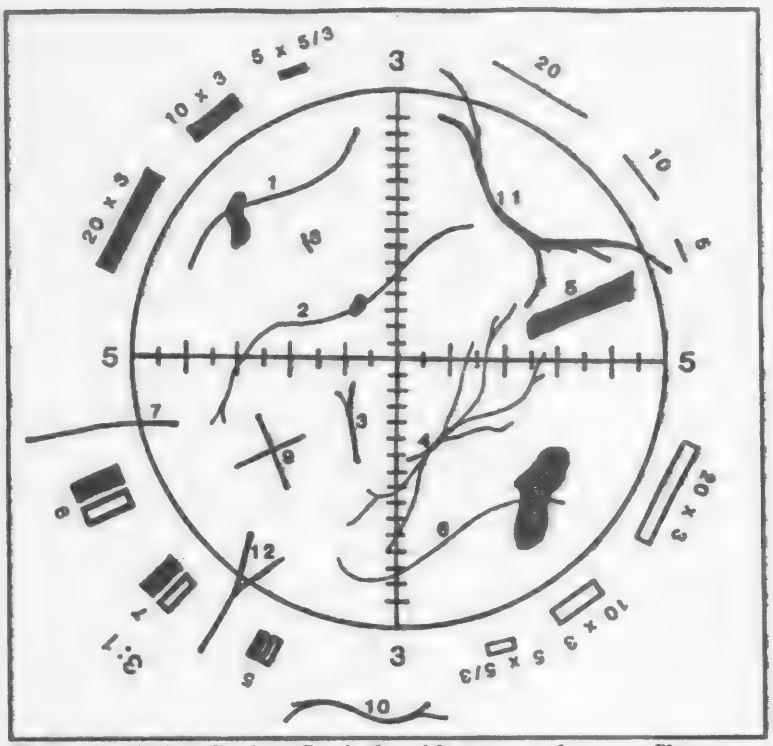

Figure 1: Walton-Beckett Graticule with some explanatory fibers.

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COUNTS FOR THE FIBERS IN THE FIGURE

Structure No.	Count	Explanation
1 to 6	1	Single fibers all contained within the Circle.
7	½	Fiber crosses circle once.
8	0	Fiber too short.
9	2	Two crossing fibers.
10	0	Fiber outside graticule.
11	0	Fiber crosses graticule twice.
12	½	Although split, fiber only crosses once.

Appendix D to § 1926.1101 [Amended]

9. Appendix D to § 1926.1101 is revised to read as follows:

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos above the permissible exposure limit, and who will therefore be included in their employer's medical surveillance program.* * *

10. Appendix F to § 1926.1101 is revised to read as follows:

Appendix F to § 1926.1101. Work Practices and Engineering Controls for Class I Asbestos Operations.—Non-mandatory

This is a non-mandatory appendix to the asbestos standards for construction and for shipyards. It describes criteria and procedures for erecting and using negative pressure enclosures for Class I Asbestos Work, when NPEs are used as an allowable control method to comply with paragraph (g)(5)(i) of this section. Many small and variable details are involved in the erection of a negative pressure enclosure. OSHA and most participants in the rulemaking agreed that only the major, more performance oriented criteria should be made mandatory. These criteria are set out in paragraph (g) of this section. In addition, this appendix includes these mandatory specifications and procedures in its guidelines in order to make this appendix coherent and helpful. The mandatory nature of the criteria which appear in the regulatory text is not changed because they are included in this "non-mandatory" appendix. Similarly, the additional criteria and procedures included as guidelines in the appendix, do not become mandatory because mandatory criteria are also included in these comprehensive guidelines.

In addition, none of the criteria, both mandatory and recommended, are meant to specify or imply the need for use of patented or licensed methods or equipment. Recommended specifications included in this attachment should not discourage the use of creative alternatives which can be shown to reliably achieve the objectives of negative-pressure enclosures.

Requirements included in this appendix, cover general provisions to be followed in all asbestos jobs, provisions which must be followed for all Class I asbestos jobs, and provisions governing the construction and testing of negative pressure enclosures. The first category includes the requirement for use of wet methods, HEPA vacuums, and immediate bagging of waste; Class I work must conform to the following provisions:

- oversight by competent person
- use of critical barriers over all openings to work area
- isolation of HVAC systems
- use of impermeable dropcloths and coverage of all objects within regulated areas

In addition, more specific requirements for NPEs include:

- maintenance of −0.02 inches water gauge within enclosure
- manometric measurements
- air movement away from employees performing removal work
- smoke testing or equivalent for detection of leaks and air direction

• deactivation of electrical circuits, if not provided with ground-fault circuit interrupters.

Planning the Project

The standard requires that an exposure assessment be conducted before the asbestos job is begun [§ 1926.1101 (f)(1)]. Information needed for that assessment, includes data relating to prior similar jobs, as applied to the specific variables of the current job. The information needed to conduct the assessment will be useful in planning the project, and in complying with any reporting requirements under this standard, when significant changes are being made to a control system listed in the standard, [see also those of USEPA (40 CFR 61, subpart M). Thus, although the standard does not explicitly require the preparation of a written asbestos removal plan, the usual constituents of such a plan, i.e., a description of the enclosure, the equipment, and the procedures to be used throughout the project, must be determined before the enclosure can be erected. The following information should be included in the planning of the system:

A physical description of the work area;
A description of the approximate amount of material to be removed;
A schedule for turning off and sealing existing ventilation systems;
Personnel hygiene procedures;
A description of personal protective equipment and clothing to be worn by employees;
A description of the local exhaust ventilation systems to be used and how they are to be tested;
A description of work practices to be observed by employees;
An air monitoring plan;
A description of the method to be used to transport waste material; and
The location of the dump site.

Materials and Equipment Necessary for Asbestos Removal

Although individual asbestos removal projects vary in terms of the equipment required to accomplish the removal of the materials, some equipment and materials are common to most asbestos removal operations.

Plastic sheeting used to protect horizontal surfaces, seal HVAC openings or to seal vertical openings and ceilings should have a minimum thickness of 6 mils. Tape or other adhesive used to attach plastic sheeting should be of sufficient adhesive strength to support the weight of the material plus all stresses encountered during the entire duration of the project without becoming detached from the surface.

Other equipment and materials which should be available at the beginning of each project are:

—HEPA Filtered Vacuum is essential for cleaning the work area after the asbestos has been removed. It should have a long hose capable of reaching out-of-the-way places, such as areas above ceiling tiles, behind pipes, etc.
—Portable air ventilation systems installed to provide the negative air pressure and air removal from the enclosure must be equipped with a HEPA filter. The number and capacity of units required to ventilate an enclosure depend on the size of the area to be ventilated. The filters for these systems should be designed in such a manner that they can be replaced when the air flow volume is reduced by the build-up of dust in the filtration material. Pressure monitoring devices with alarms and strip chart recorders attached to each system to indicate the pressure differential and the loss due to dust buildup on the filter are recommended.
—Water sprayers should be used to keep the asbestos material as saturated as possible during removal; the sprayers will provide a fine mist that minimizes the impact of the spray on the material.
—Water used to saturate the asbestos containing material can be amended by adding at least 15 milliliters (¼ ounce) of wetting agent in 1 liter (1 pint) of water. An example of a wetting agent is a 50/50 mixture of polyoxyethylene ether and polyoxyethylene polyglycol ester.
—Backup power supplies are recommended, especially for ventilation systems.
—Shower and bath water should be with mixed hot and cold water faucets. Water that has been used to clean personnel or equipment should either be filtered or be collected and discarded as asbestos waste. Soap and shampoo should be provided to aid in removing dust from the workers' skin and hair.
—See paragraphs (h) and (i) of this section for appropriate respiratory protection and protective clothing.
—See paragraph (k) of this section for required signs and labels.

Preparing the Work Area

Disabling HVAC Systems: The power to the heating, ventilation, and air conditioning systems that service the restricted area must be deactivated and locked off. All ducts, grills, access ports, windows and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.

Operating HVAC Systems in the Restricted Area: If components of a HVAC system located in the restricted area are connected to a system that will service another zone during the project, the portion of the duct in the restricted area must be sealed and pressurized. Necessary precautions include caulking the duct joints, covering all cracks and openings with two layers of sheeting, and pressurizing the duct throughout the duration of the project by restricting the return air flow. The power to the fan supplying the positive pressure should be locked "on" to prevent pressure loss.

Sealing Elevators: If an elevator shaft is located in the restricted area, it should be either shut down or isolated by sealing with two layers of plastic sheeting. The sheeting should provide enough slack to accommodate the pressure changes in the shaft without breaking the air-tight seal.

Removing Mobile Objects: All movable objects should be cleaned and removed from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be contaminated and should be either cleaned with amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as hazardous waste.

Cleaning and Sealing Surfaces: After cleaning with water and a HEPA vacuum, surfaces of stationary objects should be covered with two layers of plastic sheeting. The sheeting should be secured with duct tape or an equivalent method to provide a tight seal around the object.

Bagging Waste: In addition to the requirement for immediate bagging of waste for disposal, it is further recommended that the waste material be double-bagged and sealed in plastic bags designed for asbestos disposal. The bags should be stored in a waste storage area that can be controlled by the workers conducting the removal. Filters removed from air handling units and rubbish removed from the area are to be bagged and handled as hazardous waste.

Constructing the Enclosure

The enclosure should be constructed to provide an air-tight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Enclosures should be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

Size: An enclosure should be the minimum volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).

Structural Integrity: The walls, ceilings and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.

Openings: It is not necessary that the structure be airtight; openings may be designed to direct air flow. Such openings should be located at a distance from active removal operations. They should be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost, they should be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits should be controlled by an airlock or a vestibule.

Barrier Supports: Frames should be constructed to support all unsupported spans of sheeting.

Sheeting: Walls, barriers, ceilings, and floors should be lined with two layers of plastic sheeting having a thickness of at least 6 mil.

Seams: Seams in the sheeting material should be minimized to reduce the possibilities of accidental rips and tears in the adhesive or connections. All seams in the sheeting should overlap, be staggered and not be located at corners or wall-to-floor joints.

Areas Within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur

should be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

See paragraph (j) of this section for requirements for hygiene facilities.

During egress from the work area, each worker should step into the equipment room, clean tools and equipment, and remove gross contamination from clothing by wet cleaning and HEPA vacuuming. Before entering the shower area, foot coverings, head coverings, hand coverings, and coveralls are removed and placed in impervious bags for disposal or cleaning. Airline connections from airline respirators with HEPA disconnects and power cables from powered air-purifying respirators (PAPRs) will be disconnected just prior to entering the shower room.

Establishing Negative Pressure Within the Enclosure

Negative Pressure: Air is to be drawn into the enclosure under all anticipated conditions and exhausted through a HEPA filter for 24 hours a day during the entire duration of the project.

Air Flow Tests: Air flow patterns will be checked before removal operations begin, at least once per operating shift and any time there is a question regarding the integrity of the enclosure. The primary test for air flow is to trace air currents with smoke tubes or other visual methods. Flow checks are made at each opening and at each doorway to demonstrate that air is being drawn into the enclosure and at each worker's position to show that air is being drawn away from the breathing zone.

Monitoring Pressure Within the Enclosure: After the initial air flow patterns have been checked, the static pressure must be monitored within the enclosure. Monitoring may be made using manometers, pressure gauges, or combinations of these devices. It is recommended that they be attached to alarms and strip chart recorders at points identified by the design engineer.

Corrective Actions: If the manometers or pressure gauges demonstrate a reduction in pressure differential below the required level, work should cease and the reason for the change investigated and appropriate changes made. The air flow patterns should be retested before work begins again.

Pressure Differential: The design parameters for static pressure differentials between the inside and outside of enclosures typically range from 0.02 to 0.10 inches of water gauge, depending on conditions. All zones inside the enclosure must have less pressure than the ambient pressure outside of the enclosure (−0.02 inches water gauge differential). Design specifications for the differential vary according to the size, configuration, and shape of the enclosure as well as ambient and mechanical air pressure conditions around the enclosure.

Air Flow Patterns: The flow of air past each worker shall be enhanced by positioning the intakes and exhaust ports to remove contaminated air from the worker's breathing zone, by positioning HEPA vacuum cleaners to draw air from the worker's breathing zone, by forcing relatively uncontaminated air past the worker toward an exhaust port, or by using a combination of methods to reduce the worker's exposure.

Air Handling Unit Exhaust: The exhaust plume from air handling units should be located away from adjacent personnel and intakes for HVAC systems.

Air Flow Volume: The air flow volume (cubic meters per minute) exhausted (removed) from the workplace must exceed the amount of makeup air supplied to the enclosure. The rate of air exhausted from the enclosure should be designed to maintain a negative pressure in the enclosure and air movement past each worker. The volume of air flow removed from the enclosure should replace the volume of the container at every 5 to 15 minutes. Air flow volume will need to be relatively high for large enclosures, enclosures with awkward shapes, enclosures with multiple openings, and operations employing several workers in the enclosure.

Air Flow Velocity: At each opening, the air flow velocity must visibly "drag" air into the enclosure. The velocity of air flow within the enclosure must be adequate to remove airborne contamination from each worker's breathing zone without disturbing the asbestos-containing material on surfaces.

Airlocks: Airlocks are mechanisms on doors and curtains that control the air flow patterns in the doorways. If air flow occurs, the patterns through doorways must be such that the air flows toward the inside of the enclosure. Sometimes vestibules, double doors, or double curtains are used to prevent air movement through the doorways. To use a vestibule, a worker enters a chamber by opening the door or curtain and then closing the entry before opening the exit door or curtain.

Airlocks should be located between the equipment room and shower room, between the shower room and the clean room, and between the waste storage area and the outside of the enclosure. The air flow between adjacent rooms must be checked using smoke tubes or other visual tests to ensure the flow patterns draw air toward the work area without producing eddies.

Monitoring for Airborne Concentrations

In addition to the breathing zone samples taken as outlined in paragraph (f) of this section, samples of air should be taken to demonstrate the integrity of the enclosure, the cleanliness of the clean room and shower area, and the effectiveness of the HEPA filter. If the clean room is shown to be contaminated, the room must be relocated to an uncontaminated area.

Samples taken near the exhaust of portable ventilation systems must be done with care.

General Work Practices

Preventing dust dispersion is the primary means of controlling the spread of asbestos within the enclosure. Whenever practical, the point of removal should be isolated, enclosed, covered, or shielded from the workers in the area. Waste asbestos containing materials must be bagged during or immediately after removal; the material must remain saturated until the waste container is sealed.

Waste material with sharp points or corners must be placed in hard air-tight containers rather than bags.

Whenever possible, large components should be sealed in plastic sheeting and removed intact.

Bags or containers of waste will be moved to the waste holding area, washed, and wrapped in a bag with the appropriate labels.

Cleaning the Work Area

Surfaces within the work area should be kept free of visible dust and debris to the extent feasible. Whenever visible dust appears on surfaces, the surfaces within the enclosure must be cleaned by wiping with a wet sponge, brush, or cloth and then vacuumed with a HEPA vacuum.

All surfaces within the enclosure should be cleaned before the exhaust ventilation system is deactivated and the enclosure is disassembled. An approved encapsulate may be sprayed onto areas after the visible dust has been removed.

11. Appendix G to § 1926.1101 is removed and reserved.

12. Appendix H of § 1926.1101 is revised to read as follows:

Appendix H to § 1915.1001—Substance Technical Information for Asbestos. Non-Mandatory

I. Substance Identification

A. Substance: "Asbestos" is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

B. Asbestos is and was used in the manufacture of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials including floor tiles, roofing felts, ceiling tiles, asbestos-cement pipe and sheet, and fire-resistant drywall. Asbestos is also present in pipe and boiler insulation materials and in sprayed-on materials located on beams, in crawlspaces, and between walls.

C. The potential for an asbestos-containing product to release breathable fibers depends largely on its degree of friability. Friable means that the material can be crumbled with hand pressure and is therefore likely to emit fibers. The fibrous fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable, and they readily release airborne fibers if disturbed. Materials such as vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

D. Permissible exposure: Exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30 minute work period.

II. Health Hazard Data

A. Asbestos can cause disabling respiratory disease and various types of cancers if the fibers are inhaled. Inhaling or ingesting fibers from contaminated clothing or skin can also result in these diseases. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure.

B. Exposure to asbestos has been shown to cause lung cancer, mesothelioma, and cancer of the stomach and colon. Mesothelioma is a rare cancer of the thin membrane lining of the chest and abdomen. Symptoms of mesothelioma include shortness of breath, pain in the walls of the chest, and/or abdominal pain.

III. Respirators and Protective Clothing

A. Respirators: You are required to wear a respirator when performing tasks that result in asbestos exposure that exceeds the permissible exposure limit (PEL) of 0.1 f/cc and when performing certain designated operations. Air-purifying respirators equipped with a high-efficiency particulate air (HEPA) filter can be used where airborne asbestos fiber concentrations do not exceed 1.0 f/cc; otherwise, more protective respirators such as air-supplied, positive-pressure, full facepiece respirators must be used. Disposable respirators or dust masks are not permitted to be used for asbestos work. For effective protection, respirators must fit your face and head snugly. Your employer is required to conduct fit test when you are first assigned a respirator and every 6 months thereafter. Respirators should not be loosened or removed in work situations where their use is required.

B. Protective Clothing: You are required to wear protective clothing in work areas where asbestos fiber concentrations exceed the permissible exposure limit (PEL) of 0.1 f/cc.

IV. Disposal Procedures and Clean-up

A. Wastes that are generated by processes where asbestos is present include:

1. Empty asbestos shipping containers.
2. Process wastes such as cuttings, trimmings, or reject materials.
3. Housekeeping waste from wet-sweeping or HEPA-vacuuming.
4. Asbestos fireproofing or insulating material that is removed from buildings.
5. Asbestos-containing building products removed during building renovation or demolition.
6. Contaminated disposable protective clothing.

B. Empty shipping bags can be flattened under exhaust hoods and packed into airtight containers for disposal. Empty shipping drums are difficult to clean and should be sealed.

C. Vacuum bags or disposable paper filters should not be cleaned, but should be sprayed with a fine water mist and placed into a labeled waste container.

D. Process waste and housekeeping waste should be wetted with water or a mixture of water and surfactant prior to packaging in disposable containers.

E. Asbestos-containing material that if removed from buildings must be disposed of in leak-tight 6-mil plastic bags, plastic-lined cardboard containers, or plastic-lined metal containers. These wastes which are removed while wet, should be sealed in containers before they dry out to minimize the release of asbestos fibers during handling.

V. Access to Information

A. Each year, your employer is required to inform you of the information contained in this standard and appendices for asbestos. In addition, your employer must instruct you in the proper work practices for handling asbestos-containing materials, and the correct use of protective equipment.

B. Your employer is required to determine whether you are being exposed to asbestos. Your employer must treat exposure to thermal system insulation and sprayed-on and trowled-on surfacing material as asbestos exposure, unless results of laboratory analysis show that the material does not contain asbestos. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure, and, if you are exposed above the permissible exposure limit, he or she is required to inform you of the actions that are being taken to reduce your exposure to within the permissible limit.

C. Your employer is required to keep records of your exposures and medical examinations. These exposure records must be kept for at least thirty (30) years. Medical records must be kept for the period of your employment plus thirty (30) years.

D. Your employer is required to release your exposure and medical records to your physician or designated representative upon your written request.

Appendix I of 1926.1101 [Amended]

13. Appendix I of § 1926.1101 is amended by revising the first sentence of the second paragraph of section IV. entitled Surveillance and Preventive Consideration to read as follows:

* * * * *

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limit (0.1 fiber per cubic centimeter of air).

* * *

* * * * *

14. Appendix K to § 1926.1101 is added to read as follows:

Appendix K to § 1926.1101—Polarized Light Microscopy of Asbestos (Non-Mandatory)

Method number:
ID–191
Matrix: Bulk
Collection Procedure:
Collect approximately 1 to 2 grams of each type of material and place into separate 20 mL scintillation vials.
Analytical Procedure:
A portion of each separate phase is analyzed by gross examination, phase-polar examination, and central stop dispersion microscopy.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL-OSHA. Similar products from other sources may be substituted.

1. Introduction

This method describes the collection and analysis of asbestos bulk materials by light microscopy techniques including phase-polar illumination and central-stop dispersion microscopy. Some terms unique to asbestos analysis are defined below:

Amphibole: A family of minerals whose crystals are formed by long, thin units which have two thin ribbons of double chain silicate with a brucite ribbon in between. The shape of each unit is similar to an "I beam". Minerals important in asbestos analysis include cummingtonite-grunerite, crocidolite, tremolite-actinolite and anthophyllite.

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, cummingtonite-grunerite asbestos (amosite), anthophyllite asbestos, tremolite asbestos, crocidolite, actinolite asbestos and any of these minerals which have been chemically treated or altered. The precise chemical formulation of each species varies with the location from which it was mined. Nominal compositions are listed:

Chrysotile ..... $Mg_3Si_2O_5(OH)_4$
Crocidolite (Riebeckite asbestos)..... $Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$
Cummingtonite-Grunerite asbestos (Amosite)..... $(Mg,Fe)_7Si_8O_{22}(OH)_2$
Tremolite-Actinolite asbestos ..... $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$
Anthophyllite asbestos ..... $(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos meeting the criteria for a fiber. (See section 3.5. of this Appendix)

Aspect Ratio: The ratio of the length of a fiber to its diameter usually defined as "length : width", e.g. 3:1.

Brucite: A sheet mineral with the composition $Mg(OH)_2$.

Central Stop Dispersion Staining (microscope): This is a dark field microscope technique that images particles using only light refracted by the particle, excluding light that travels through the particle unrefracted. This is usually accomplished with a McCrone objective or other arrangement which places a circular stop with apparent aperture equal to the objective aperture in the back focal plane of the microscope.

Cleavage Fragments: Mineral particles formed by the comminution of minerals, especially those characterized by relatively parallel sides and moderate aspect ratio.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from a phase contrast asbestos count because they are not asbestos.

Fiber: A particle longer than or equal to 5 µm with a length to width ratio greater than or equal to 3:1. This may include cleavage fragments. (see section 3.5 of this appendix).

Phase Contrast: Contrast obtained in the microscope by causing light scattered by small particles to destructively interfere with unscattered light, thereby enhancing the visibility of very small particles and particles with very low intrinsic contrast.

Phase Contrast Microscope: A microscope configured with a phase mask pair to create phase contrast. The technique which uses this is called Phase Contrast Microscopy (PCM).

Phase-Polar Analysis: This is the use of polarized light in a phase contrast microscope. It is used to see the same size fibers that are visible in air filter analysis. Although fibers finer than 1 μm are visible, analysis of these is inferred from analysis of larger bundles that are usually present.

Phase-Polar Microscope: The phase-polar microscope is a phase contrast microscope which has an analyzer, a polarizer, a first order red plate and a rotating phase condenser all in place so that the polarized light image is enhanced by phase contrast.

Sealing Encapsulant: This is a product which can be applied, preferably by spraying, onto an asbestos surface which will seal the surface so that fibers cannot be released.

Serpentine: A mineral family consisting of minerals with the general composition $Mg_3(Si_2O_5)(OH)_4$ having the magnesium in brucite layer over a silicate layer. Minerals important in asbestos analysis included in this family are chrysotile, lizardite, antigorite.

1.1. History

Light microscopy has been used for well over 100 years for the determination of mineral species. This analysis is carried out using specialized polarizing microscopes as well as bright field microscopes. The identification of minerals is an on-going process with many new minerals described each year. The first recorded use of asbestos was in Finland about 2500 B.C. where the material was used in the mud wattle for the wooden huts the people lived in as well as strengthening for pottery. Adverse health aspects of the mineral were noted nearly 2000 years ago when Pliny the Younger wrote about the poor health of slaves in the asbestos mines. Although known to be injurious for centuries, the first modern references to its toxicity were by the British Labor Inspectorate when it banned asbestos dust from the workplace in 1898. Asbestosis cases were described in the literature after the turn of the century. Cancer was first suspected in the mid 1930's and a causal link to mesothelioma was made in 1965. Because of the public concern for worker and public safety with the use of this material, several different types of analysis were applied to the determination of asbestos content. Light microscopy requires a great deal of experience and craft. Attempts were made to apply less subjective methods to the analysis. X-ray diffraction was partially successful in determining the mineral types but was unable to separate out the fibrous portions from the non-fibrous portions. Also, the minimum detection limit for asbestos analysis by X-ray diffraction (XRD) is about 1%. Differential Thermal Analysis (DTA) was no more successful. These provide useful corroborating information when the presence of asbestos has been shown by microscopy; however, neither can determine the difference between fibrous and non-fibrous minerals when both habits are present. The same is true of Infrared Absorption (IR).

When electron microscopy was applied to asbestos analysis, hundreds of fibers were discovered present too small to be visible in any light microscope. There are two different types of electron microscope used for asbestos analysis: Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). Scanning Electron Microscopy is useful in identifying minerals. The SEM can provide two of the three pieces of information required to identify fibers by electron microscopy: morphology and chemistry. The third is structure as determined by Selected Area Electron Diffraction—SAED which is performed in the TEM. Although the resolution of the SEM is sufficient for very fine fibers to be seen, accuracy of chemical analysis that can be performed on the fibers varies with fiber diameter in fibers of less than 0.2 μm diameter. The TEM is a powerful tool to identify fibers too small to be resolved by light microscopy and should be used in conjunction with this method when necessary. The TEM can provide all three pieces of information required for fiber identification. Most fibers thicker than 1 μm can adequately be defined in the light microscope. The light microscope remains as the best instrument for the determination of mineral type. This is because the minerals under investigation were first described analytically with the light microscope. It is inexpensive and gives positive identification for most samples analyzed. Further, when optical techniques are inadequate, there is ample indication that alternative techniques should be used for complete identification of the sample.

1.2. Principle

Minerals consist of atoms that may be arranged in random order or in a regular arrangement. Amorphous materials have atoms in random order while crystalline materials have long range order. Many materials are transparent to light, at least for small particles or for thin sections. The properties of these materials can be investigated by the effect that the material has on light passing through it. The six asbestos minerals are all crystalline with particular properties that have been identified and cataloged. These six minerals are anisotropic. They have a regular array of atoms, but the arrangement is not the same in all directions. Each major direction of the crystal presents a different regularity. Light photons travelling in each of these main directions will encounter different electrical neighborhoods, affecting the path and time of travel. The techniques outlined in this method use the fact that light traveling through fibers or crystals in different directions will behave differently, but predictably. The behavior of the light as it travels through a crystal can be measured and compared with known or determined values to identify the mineral species. Usually, Polarized Light Microscopy (PLM) is performed with strain-free objectives on a bright-field microscope platform. This would limit the resolution of the microscope to about 0.4 μm. Because OSHA requires the counting and identification of fibers visible in phase contrast, the phase contrast platform is used to visualize the fibers with the polarizing elements added into the light path. Polarized light methods cannot identify fibers finer than about 1μm in diameter even though they are visible. The finest fibers are usually identified by inference from the presence of larger, identifiable fiber bundles When fibers are present, but not identifiable by light microscopy, use either SEM or TEM to determine the fiber identity.

1.3. Advantages and Disadvantages

The advantages of light microcopy are:

(a) Basic identification of the materials was first performed by light microscopy and gross analysis. This provides a large base of published information against which to check analysis and analytical technique.

(b) The analysis is specific to fibers. The minerals present can exist in asbestiform, fibrous, prismatic, or massive varieties all at the same time. Therefore, bulk methods of analysis such as X-ray diffraction, IR analysis, DTA, etc. are inappropriate where the material is not known to be fibrous.

(c) The analysis is quick, requires little preparation time, and can be performed on-site if a suitably equipped microscope is available.

The disadvantages are:

(a) Even using phase-polar illumination, not all the fibers present may be seen. This is a problem for very low asbestos concentrations where agglomerations or large bundles of fibers may not be present to allow identification by inference.

(b) The method requires a great degree of sophistication on the part of the microscopist. An analyst is only as useful as his mental catalog of images. Therefore, a microscopist's accuracy is enhanced by experience. The mineralogical training of the analyst is very important. It is the basis on which subjective decisions are made.

(c) The method uses only a tiny amount of material for analysis. This may lead to sampling bias and false results (high or low). This is especially true if the sample is severely inhomogeneous.

(d) Fibers may be bound in a matrix and not distinguishable as fibers so identification cannot be made.

1.4. Method Performance

1.4.1. This method can be used for determination of asbestos content from 0 to 100% asbestos. The detection limit has not been adequately determined, although for selected samples, the limit is very low, depending on the number of particles examined. For mostly homogeneous, finely divided samples, with no difficult fibrous interferences, the detection limit is below 1%. For inhomogeneous samples (most samples), the detection limit remains undefined. NIST has conducted proficiency testing of laboratories on a national scale. Although each round is reported statistically with an average, control limits, etc., the results indicate a difficulty in establishing precision especially in the low concentration range. It is suspected that there is significant bias in the low range especially near 1%. EPA tried to remedy this by requiring a mandatory point counting scheme for samples less than 10%. The point counting procedure is tedious, and may introduce significant biases of its own. It has not been incorporated into this method.

1.4.2. The precision and accuracy of the quantitation tests performed in this method are unknown. Concentrations are easier to determine in commercial products where asbestos was deliberately added because the amount is usually more than a few percent. An analyst's results can be "calibrated" against the known amounts added by the manufacturer. For geological samples, the degree of homogeneity affects the precision.

1.4.3. The performance of the method is analyst dependent. The analyst must choose carefully and not necessarily randomly the portions for analysis to assure that detection of asbestos occurs when it is present. For this reason, the analyst must have adequate training in sample preparation, and experience in the location and identification of asbestos in samples. This is usually accomplished through substantial on-the-job training as well as formal education in mineralogy and microscopy.

1.5. Interferences

Any material which is long, thin, and small enough to be viewed under the microscope can be considered an interference for asbestos. There are literally hundreds of interferences in workplaces. The techniques described in this method are normally sufficient to eliminate the interferences. An analyst's success in eliminating the interferences depends on proper training.

Asbestos minerals belong to two mineral families: the serpentines and the amphiboles. In the serpentine family, the only common fibrous mineral is chrysotile. Occasionally, the mineral antigorite occurs in a fibril habit with morphology similar to the amphiboles. The amphibole minerals consist of a score of different minerals of which only five are regulated by federal standard: amosite, crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos. These are the only amphibole minerals that have been commercially exploited for their fibrous properties; however, the rest can and do occur occasionally in asbestiform habit.

In addition to the related mineral interferences, other minerals common in building material may present a problem for some microscopists: gypsum, anhydrite, brucite, quartz fibers, talc fibers or ribbons, wollastonite, perlite, attapulgite, etc. Other fibrous materials commonly present in workplaces are: fiberglass, mineral wool, ceramic wool, refractory ceramic fibers, kevlar, nomex, synthetic fibers, graphite or carbon fibers, cellulose (paper or wood) fibers, metal fibers, etc.

Matrix embedding material can sometimes be a negative interference. The analyst may not be able to easily extract the fibers from the matrix in order to use the method. Where possible, remove the matrix before the analysis, taking careful note of the loss of weight. Some common matrix materials are: vinyl, rubber, tar, paint, plant fiber, cement, and epoxy. A further negative interference is that the asbestos fibers themselves may be either too small to be seen in Phase contrast Microscopy (PCM) or of a very low fibrous quality, having the appearance of plant fibers. The analyst's ability to deal with these materials increases with experience.

1.6. Uses and Occupational Exposure

Asbestos is ubiquitous in the environment. More than 40% of the land area of the United States is composed of minerals which may contain asbestos. Fortunately, the actual formation of great amounts of asbestos is relatively rare. Nonetheless, there are locations in which environmental exposure can be severe such as in the Serpentine Hills of California.

There are thousands of uses for asbestos in industry and the home. Asbestos abatement workers are the most current segment of the population to have occupational exposure to great amounts of asbestos. If the material is undisturbed, there is no exposure. Exposure occurs when the asbestos-containing material is abraded or otherwise disturbed during maintenance operations or some other activity. Approximately 95% of the asbestos in place in the United States is chrysotile.

Amosite and crocidolite make up nearly all the difference. Tremolite and anthophyllite make up a very small percentage. Tremolite is found in extremely small amounts in certain chrysotile deposits. Actinolite exposure is probably greatest from environmental sources, but has been identified in vermiculite containing, sprayed-on insulating materials which may have been certified as asbestos-free.

1.7. Physical and Chemical Properties

The nominal chemical compositions for the asbestos minerals were given in Section 1. Compared to cleavage fragments of the same minerals, asbestiform fibers possess a high tensile strength along the fiber axis. They are chemically inert, non-combustible, and heat resistant. Except for chrysotile, they are insoluble in Hydrochloric acid (HCl). Chrysotile is slightly soluble in HCl. Asbestos has high electrical resistance and good sound absorbing characteristics. It can be woven into cables, fabrics or other textiles, or matted into papers, felts, and mats.

1.8. Toxicology (This Section is for Information Only and Should Not Be Taken as OSHA Policy)

Possible physiologic results of respiratory exposure to asbestos are mesothelioma of the pleura or peritoneum, interstitial fibrosis, asbestosis, pneumoconiosis, or respiratory cancer. The possible consequences of asbestos exposure are detailed in the NIOSH Criteria Document or in the OSHA Asbestos Standards 29 CFR 1910.1001 and 29 CFR 1926.1101.

2. Sampling Procedure

2.1. Equipment for sampling

(a) Tube or cork borer sampling device
(b) Knife
(c) 20 mL scintillation vial or similar vial
(d) Sealing encapsulant

2.2. Safety Precautions

Asbestos is a known carcinogen. Take care when sampling. While in an asbestos-containing atmosphere, a properly selected and fit-tested respirator should be worn. Take samples in a manner to cause the least amount of dust. Follow these general guidelines:

(a) Do not make unnecessary dust.
(b) Take only a small amount (1 to 2 g).
(c) Tightly close the sample container.
(d) Use encapsulant to seal the spot where the sample was taken, if necessary.

2.3. Sampling Procedure

Samples of any suspect material should be taken from an inconspicuous place. Where the material is to remain, seal the sampling wound with an encapsulant to eliminate the potential for exposure from the sample site. Microscopy requires only a few milligrams of material. The amount that will fill a 20 mL scintillation vial is more than adequate. Be sure to collect samples from all layers and phases of material. If possible, make separate samples of each different phase of the material. This will aid in determining the actual hazard. *DO NOT USE ENVELOPES, PLASTIC OR PAPER BAGS OF ANY KIND TO COLLECT SAMPLES.* The use of plastic bags presents a contamination hazard to laboratory personnel and to other samples. When these containers are opened, a bellows effect blows fibers out of the container onto everything, including the person opening the container.

If a cork-borer type sampler is available, push the tube through the material all the way, so that all layers of material are sampled. Some samplers are intended to be disposable. These should be capped and sent to the laboratory. If a non-disposable cork borer is used, empty the contents into a scintillation vial and send to the laboratory. Vigorously and completely clean the cork borer between samples.

2.4 Shipment

Samples packed in glass vials must not touch or they might break in shipment.

(a) Seal the samples with a sample seal (such as the OSHA 21) over the end to guard against tampering and to identify the sample

(b) Package the bulk samples in separate packages from the air samples. They may cross-contaminate each other and will invalidate the results of the air samples.

(c) Include identifying paperwork *with* the samples, but not in contact with the suspected asbestos.

(d) To maintain sample accountability, ship the samples by certified mail, overnight express, or hand carry them to the laboratory

3. Analysis

The analysis of asbestos samples can be divided into two major parts: sample preparation and microscopy. Because of the different asbestos uses that may be encountered by the analyst, each sample may need different preparation steps. The choices are outlined below. There are several different tests that are performed to identify the asbestos species and determine the percentage. They will be explained below.

3.1. Safety

(a) Do not create unnecessary dust. Handle the samples in HEPA-filter equipped hoods. If samples are received in bags, envelopes or other inappropriate container, open them only in a hood having a face velocity at or greater than 100 fpm. Transfer a small amount to a scintillation vial and only handle the smaller amount.

(b) Open samples in a hood, never in the open lab area.

(c) Index of refraction oils can be toxic. Take care not to get this material on the skin. Wash immediately with soap and water if this happens.

(d) Samples that have been heated in the muffle furnace or the drying oven may be hot. Handle them with tongs until they are cool enough to handle.

(e) Some of the solvents used, such as THF (tetrahydrofuran), are toxic and should only be handled in an appropriate fume hood and according to instructions given in the Material Safety Data Sheet (MSDS).

3.2. Equipment

(a) Phase contrast microscope with 10x, 16x and 40x objectives, 10x wide-field eyepieces, G–22 Walton-Beckett graticule, Whipple disk, polarizer, analyzer and first order red or gypsum plate, 100 Watt illuminator, rotating position condenser with oversize phase rings, central stop dispersion objective, Kohler illumination and a rotating mechanical stage.

(b) Stereo microscope with reflected light illumination, transmitted light illumination, polarizer, analyzer and first order red or gypsum plate, and rotating stage.

(c) Negative pressure hood for the stereo microscope

(d) Muffle furnace capable of 600°C

(e) Drying oven capable of 50—150°C

(f) Aluminum specimen pans

(g) Tongs for handling samples in the furnace

(h) High dispersion index of refraction oils (Special for dispersion staining.)

n=1.550
n=1.585
n=1.590
n=1.605
n=1.620
n=1.670
n=1.680
n=1.690

(i) A set of index of refraction oils from about n=1.350 to n=2.000 in n=0.005 increments. (Standard for Becke line analysis.)

(j) Glass slides with painted or frosted ends 1x3 inches 1mm (thick, precleaned.

(k) Cover Slips 22x22 mm, #1½

(l) Paper clips or dissection needles

(m) Hand grinder

(n) Scalpel with both #10 and #11 blades

(o) 0.1 molar HCl

(p) Decalcifying solution (Baxter Scientific Products) Ethylenediaminetetraacetic Acid, Tetrasodium.....0.7 g/l
Sodium Potassium Tartrate.....8.0 mg/liter
Hydrochloric Acid.....99.2 g/liter
Sodium Tartrate.....0.14 g/liter

(q) Tetrahydrofuran (THF)

(r) Hotplate capable of 60°C

(s) Balance

(t) Hacksaw blade

(u) Ruby mortar and pestle

3.3. Sample Pre-Preparation

Sample preparation begins with pre-preparation which may include chemical reduction of the matrix, heating the sample to dryness or heating in the muffle furnace. The end result is a sample which has been reduced to a powder that is sufficiently fine to fit under the cover slip. Analyze different phases of samples separately, e.g., tile and the tile mastic should be analyzed separately as the mastic may contain asbestos while the tile may not.

(a) *Wet Samples*

Samples with a high water content will not give the proper dispersion colors and must be dried prior to sample mounting. Remove the lid of the scintillation vial, place the bottle in the drying oven and heat at 100°C to dryness (usually about 2 h). Samples which are not submitted to the lab in glass must be removed and placed in glass vials or aluminum weighing pans before placing them in the drying oven.

(b) *Samples With Organic Interference—Muffle Furnace*

These may include samples with tar as a matrix, vinyl asbestos tile, or any other organic that can be reduced by heating. Remove the sample from the vial and weigh in a balance to determine the weight of the submitted portion. Place the sample in a muffle furnace at 500°C for 1 to 2 h or until all obvious organic material has been removed. Retrieve, cool and weigh again to determine the weight loss on ignition. This is necessary to determine the asbestos content of the submitted sample, because the analyst will be looking at a reduced sample.

Note: Heating above 600°C will cause the sample to undergo a structural change which, given sufficient time, will convert the chrysotile to forsterite. Heating even at lower temperatures for 1 to 2 h may have a measurable effect on the optical properties of the minerals. If the analyst is unsure of what to expect, a sample of standard asbestos should be heated to the same temperature for the same length of time so that it can be examined for the proper interpretation.

(c) *Samples With Organic Interference—THF*

Vinyl asbestos tile is the most common material treated with this solvent, although, substances containing tar will sometimes yield to this treatment. Select a portion of the material and then grind it up if possible. Weigh the sample and place it in a test tube. Add sufficient THF to dissolve the organic matrix. This is usually about 4 to 5 mL. *Remember, THF is highly flammable.* Filter the remaining material through a tared silver membrane, dry and weigh to determine how much is left after the solvent extraction. Further process the sample to remove carbonate or mount directly.

(d) *Samples With Carbonate Interference*

Carbonate material is often found on fibers and sometimes must be removed in order to perform dispersion microscopy. Weigh out a portion of the material and place it in a test tube. Add a sufficient amount of 0.1 M HCl or decalcifying solution in the tube to react all the carbonate as evidenced by gas formation; i.e., when the gas bubbles stop, add a little more solution. If no more gas forms, the reaction is complete. Filter the material out through a tared silver membrane, dry and weigh to determine the weight lost.

3.4. Sample Preparation

Samples must be prepared so that accurate determination can be made of the asbestos type and amount present. The following steps are carried out in the low-flow hood (a low-flow hood has less than 50 fpm flow):

(1) If the sample has large lumps, is hard, or cannot be made to lie under a cover slip, the grain size must be reduced. Place a small amount between two slides and grind the material between them or grind a small amount in a clean mortar and pestle. The choice of whether to use an alumina, ruby, or diamond mortar depends on the hardness of the material. Impact damage can alter the asbestos mineral if too much mechanical shock occurs. (Freezer mills can completely destroy the observable crystallinity of asbestos and should not be used). For some samples, a portion of material can be shaved off with a scalpel, ground off with a hand grinder or hack saw blade.

The preparation tools should either be disposable or cleaned thoroughly. Use vigorous scrubbing to loosen the fibers during the washing. Rinse the implements with copious amounts of water and air-dry in a dust-free environment.

(2) If the sample is powder or has been reduced as in (1) above, it is ready to mount. Place a glass slide on a piece of optical tissue and write the identification on the painted or frosted end. Place two drops of index of refraction medium n=1.550 on the slide. (The medium n=1.550 is chosen because it is the matching index for chrysotile. Dip the end of a clean paper-clip or dissecting needle into the droplet of refraction medium *on the slide* to moisten it. Then dip the probe into the powder sample. Transfer what sticks on the probe to the slide. The material on the end of the probe should have a diameter of about 3 mm for a good mount. If the material is very fine, less sample may be appropriate. For non-powder samples such as fiber mats, forceps should be used to transfer a small amount of material to the slide. Stir the material in the medium on the slide, spreading it out and making the preparation as uniform as possible. Place a cover-slip on the preparation by gently lowering onto the slide and allowing it to fall "trapdoor" fashion on the preparation to push out any bubbles. Press gently on the cover slip to even out the distribution of particulate on the slide. If there is insufficient mounting oil on the slide, one or two drops may be placed near the edge of the coverslip on the slide. Capillary action will draw the necessary amount of liquid into the preparation. Remove excess oil with the point of a laboratory wiper.

Treat at least two different areas of each phase in this fashion. Choose representative areas of the sample. It may be useful to select particular areas or fibers for analysis. This is useful to identify asbestos in severely inhomogeneous samples.

When it is determined that amphiboles may be present, repeat the above process using the appropriate high-dispersion oils until an identification is made or all six asbestos minerals have been ruled out. Note that percent determination must be done in the index medium 1.550 because amphiboles tend to disappear in their matching mediums.

3.5. Analytical procedure

Note: This method presumes some knowledge of mineralogy and optical petrography.

The analysis consists of three parts: The determination of whether there is asbestos present, what type is present and the determination of how much is present. The general flow of the analysis is:

(1) Gross examination.

(2) Examination under polarized light on the stereo microscope.

(3) Examination by phase-polar illumination on the compound phase microscope.

(4) Determination of species by dispersion stain. Examination by Becke line analysis may also be used; however, this is usually more cumbersome for asbestos determination.

(5) Difficult samples may need to be analyzed by SEM or TEM, or the results from those techniques combined with light microscopy for a definitive identification.

Identification of a particle as asbestos requires that it be asbestiform. Description of particles should follow the suggestion of Campbell. (Figure 1)

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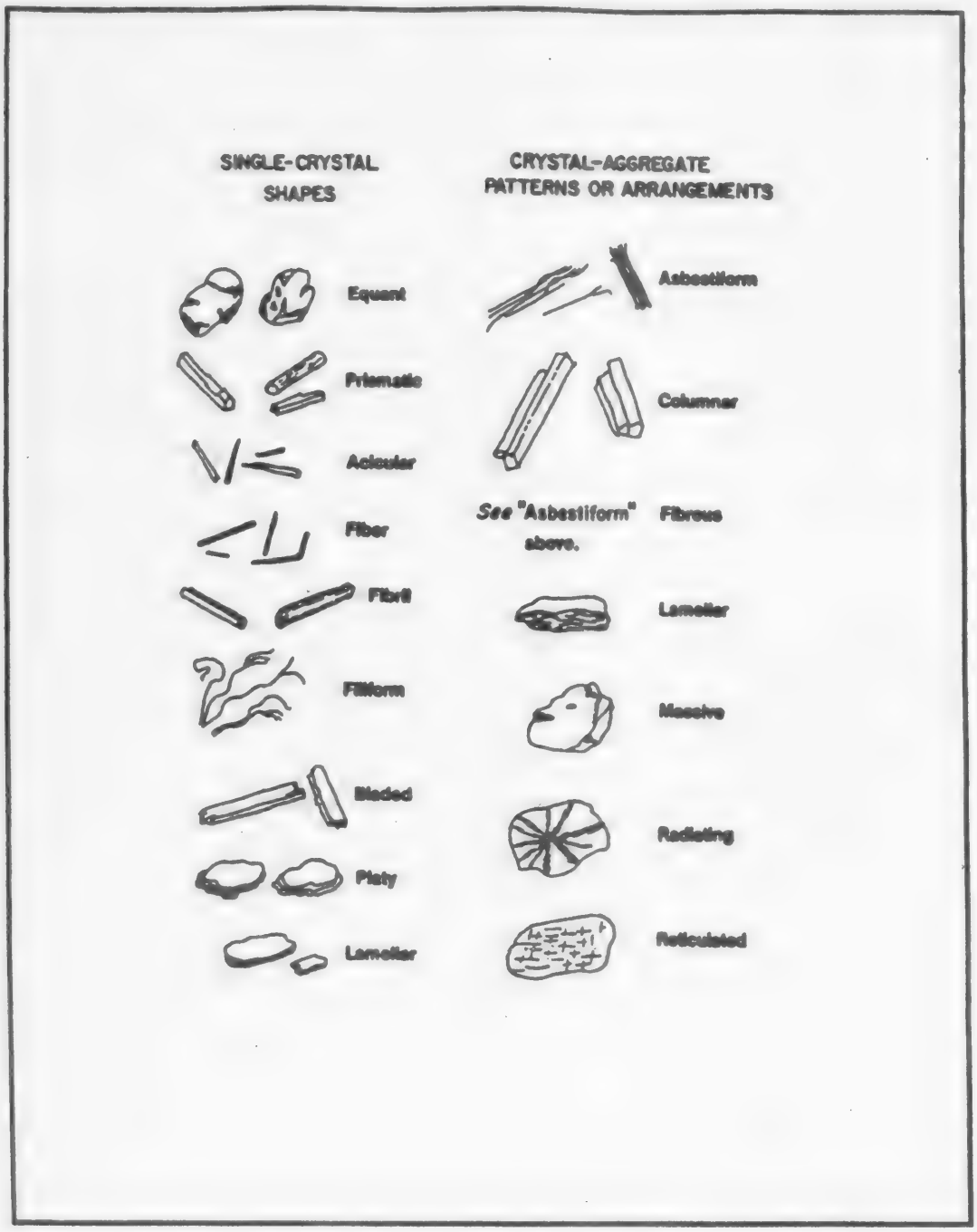

Figure 1. Particle definitions showing mineral growth habits. From the U.S. Bureau of Mines

For the purpose of regulation, the mineral must be one of the six minerals covered and must be in the asbestos growth habit. Large specimen samples of asbestos generally have the gross appearance of wood. Fibers are easily parted from it. Asbestos fibers are very long compared with their widths. The fibers have a very high tensile strength as demonstrated by bending without breaking. Asbestos fibers exist in bundles that are easily parted, show longitudinal fine structure and may be tufted at the ends showing "bundle of sticks" morphology. In the microscope some of these properties may not be observable. Amphiboles do not always show striations along their length even when they are asbestos. Neither will they always show tufting. They generally do not show a curved nature except for very long fibers. Asbestos and asbestiform minerals are usually characterized in groups by extremely high aspect ratios (greater than 100:1). While aspect ratio analysis is useful for characterizing populations of fibers, it cannot be used to identify individual fibers of intermediate to short aspect ratio. Observation of many fibers is often necessary to determine whether a sample consists of "cleavage fragments" or of asbestos fibers.

Most cleavage fragments of the asbestos minerals are easily distinguishable from true asbestos fibers. This is because true cleavage fragments usually have larger diameters than 1 μm. Internal structure of particles larger than this usually shows them to have no internal fibriller structure. In addition, cleavage fragments of the monoclinic amphiboles show inclined extinction under crossed polars with no compensator. Asbestos fibers usually show extinction at zero degrees or ambiguous extinction if any at all. Morphologically, the larger cleavage fragments are obvious by their blunt or stepped ends showing prismatic habit. Also, they tend to be acicular rather than filiform.

Where the particles are less than 1 μm in diameter and have an aspect ratio greater than or equal to 3:1, it is recommended that the sample be analyzed by SEM or TEM if there is any question whether the fibers are cleavage fragments or asbestiform particles.

Care must be taken when analyzing by electron microscopy because the interferences are different from those in light microscopy and may structurally be very similar to asbestos. The classic interference is between anthophyllite and biopyribole or intermediate fiber. Use the same morphological clues for electron microscopy as are used for light microscopy, e.g. fibril splitting, internal longitudinal striation, fraying, curvature, etc.

(1) Gross examination:

Examine the sample, preferably in the glass vial. Determine the presence of any obvious fibrous component. Estimate a percentage based on previous experience and current observation. Determine whether any pre-preparation is necessary. Determine the number of phases present. This step may be carried out or augmented by observation at 6 to 40× under a stereo microscope.

(2) After performing any necessary pre-preparation, prepare slides of each phase as described above. Two preparations of the same phase in the same index medium can be made side-by-side on the same glass for convenience. Examine with the polarizing stereo microscope. Estimate the percentage of asbestos based on the amount of birefringent fiber present.

(3) Examine the slides on the phase-polar microscopes at magnifications of 160 and 400×. Note the morphology of the fibers. Long, thin, very straight fibers with little curvature are indicative of fibers from the amphibole family. Curved, wavy fibers are usually indicative of chrysotile. Estimate the percentage of asbestos on the phase-polar microscope under conditions of crossed polars and a gypsum plate. Fibers smaller than 1.0 μm in thickness must be identified by inference to the presence of larger, identifiable fibers and morphology. If no larger fibers are visible, electron microscopy should be performed. At this point, only a tentative identification can be made. Full identification must be made with dispersion microscopy. Details of the tests are included in the appendices.

(4) Once fibers have been determined to be present, they must be identified. Adjust the microscope for dispersion mode and observe the fibers. The microscope has a rotating stage, one polarizing element, and a system for generating dark-field dispersion microscopy (see Section 4.6. of this appendix). Align a fiber with its length parallel to the polarizer and note the color of the Becke lines. Rotate the stage to bring the fiber length perpendicular to the polarizer and note the color. Repeat this process for every fiber or fiber bundle examined. The colors must be consistent with the colors generated by standard asbestos reference materials for a positive identification. In n=1.550, amphiboles will generally show a yellow to straw-yellow color indicating that the fiber indices of refraction are higher than the liquid. If long, thin fibers are noted and the colors are yellow, prepare further slides as above in the suggested matching liquids listed below:

Type of asbestos	Index of refraction
Chrysotile	n=1.550.
Amosite	n=1.670 r 1.680.
Crocidolite	n=1.690.
Anthophyllite	n=1.605 nd 1.620.
Tremolite	n=1.605 and 1.620.
Actinolite	n=1.620.

Where more than one liquid is suggested, the first is preferred; however, in some cases this liquid will not give good dispersion color. Take care to avoid interferences in the other liquid; e.g., wollastonite in n=1.620 will give the same colors as tremolite. In n=1.605 wollastonite will appear yellow in all directions. Wollastonite may be determined under crossed polars as it will change from blue to yellow as it is rotated along its fiber axis by tapping on the cover slip. Asbestos minerals will not change in this way.

Determination of the angle of extinction may, when present, aid in the determination of anthophyllite from tremolite. True asbestos fibers usually have 0° extinction or ambiguous extinction, while cleavage fragments have more definite extinction.

Continue analysis until both preparations have been examined and all present species of asbestos are identified. If there are no fibers present, or there is less than 0.1% present, end the analysis with the minimum number of slides (2).

(5) Some fibers have a coating on them which makes dispersion microscopy very difficult or impossible. Becke line analysis or electron microscopy may be performed in those cases. Determine the percentage by light microscopy. TEM analysis tends to overestimate the actual percentage present.

(6) Percentage determination is an estimate of occluded area, tempered by gross observation. Gross observation information is used to make sure that the high magnification microscopy does not greatly over- or under-estimate the amount of fiber present. This part of the analysis requires a great deal of experience. Satisfactory models for asbestos content analysis have not yet been developed, although some models based on metallurgical grain-size determination have found some utility. Estimation is more easily handled in situations where the grain sizes visible at about 160× are about the same and the sample is relatively homogeneous.

View all of the area under the cover slip to make the percentage determination. View the fields while moving the stage, paying attention to the clumps of material. These are not usually the best areas to perform dispersion microscopy because of the interference from other materials. But, they are the areas most likely to represent the accurate percentage in the sample. Small amounts of asbestos require slower scanning and more frequent analysis of individual fields.

Report the area occluded by asbestos as the concentration. This estimate does not generally take into consideration the difference in density of the different species present in the sample. For most samples this is adequate. Simulation studies with similar materials must be carried out to apply microvisual estimation for that purpose and is beyond the scope of this procedure.

(7) Where successive concentrations have been made by chemical or physical means, the amount reported is the percentage of the material in the "as submitted" or original state. The percentage determined by microscopy is multiplied by the fractions remaining after pre-preparation steps to give the percentage in the original sample. For example:

Step 1. 60% remains after heating at 550 °C for 1 h.

Step 2. 30% of the residue of step 1 remains after dissolution of carbonate in 0.1 m HCl.

Step 3. Microvisual estimation determines that 5% of the sample is chrysotile asbestos.

The reported result is:

R=(Microvisual result in percent) × (Fraction remaining after step 2) × (Fraction remaining of original sample after step 1)

R=(5)×(.30)×(.60)=0.9%

(8) Report the percent and type of asbestos present. For samples where asbestos was identified, but is less than 1.0%, report "Asbestos present, less than 1.0%." There

must have been at least two observed fibers or fiber bundles in the two preparations to be reported as present. For samples where asbestos was not seen, report as "None Detected."

Auxiliary Information

Because of the subjective nature of asbestos analysis, certain concepts and procedures need to be discussed in more depth. This information will help the analyst understand why some of the procedures are carried out the way they are.

4.1. Light

Light is electromagnetic energy. It travels from its source in packets called quanta. It is instructive to consider light as a plane wave. The light has a direction of travel. Perpendicular to this and mutually perpendicular to each other, are two vector components. One is the magnetic vector and the other is the electric vector. We shall only be concerned with the electric vector. In this description, the interaction of the vector and the mineral will describe all the observable phenomena. From a light source such a microscope illuminator, light travels in all different direction from the filament.

In any given direction away from the filament, the electric vector is perpendicular to the direction of travel of a light ray. While perpendicular, its orientation is random about the travel axis. If the electric vectors from all the light rays were lined up by passing the light through a filter that would only let light rays with electric vectors oriented in one direction pass, the light would then be *POLARIZED.*

Polarized light interacts with matter in the direction of the electric vector. This is the polarization direction. Using this property it is possible to use polarized light to probe different materials and identify them by how they interact with light.

The speed of light in a vacuum is a constant at about 2.99×10^8 m/s. When light travels in different materials such as air, water, minerals or oil, it does not travel at this speed. It travels slower. This slowing is a function of both the material through which the light is traveling and the wavelength or frequency of the light. In general, the more dense the material, the slower the light travels. Also, generally, the higher the frequency, the slower the light will travel. The ratio of the speed of light in a vacuum to that in a material is called the index of refraction (n). It is usually measured at 589 nm (the sodium D line). If white light (light containing all the visible wavelengths) travels through a material, rays of longer wavelengths will travel faster than those of shorter wavelengths, this separation is called dispersion. Dispersion is used as an identifier of materials as described in Section 4.6.

4.2. Material Properties

Materials are either amorphous or crystalline. The difference between these two descriptions depends on the positions of the atoms in them. The atoms in amorphous materials are randomly arranged with no long range order. An example of an amorphous material is glass. The atoms in crystalline materials, on the other hand, are in regular arrays and have long range order. Most of the atoms can be found in highly predictable locations. Examples of crystalline material are salt, gold, and the asbestos minerals.

It is beyond the scope of this method to describe the different types of crystalline materials that can be found, or the full description of the classes into which they can fall. However, some general crystallography is provided below to give a foundation to the procedures described.

With the exception of anthophyllite, all the asbestos minerals belong to the monoclinic crystal type. The unit cell is the basic repeating unit of the crystal and for monoclinic crystals can be described as having three unequal sides, two 90° angles and one angle not equal to 90°. The orthorhombic group, of which anthophyllite is a member has three unequal sides and three 90° angles. The unequal sides are a consequence of the complexity of fitting the different atoms into the unit cell. Although the atoms are in a regular array, that array is not symmetrical in all directions. There is long range order in the three major directions of the crystal. However, the order is different in each of the three directions. This has the effect that the index of refraction is different in each of the three directions. Using polarized light, we can investigate the index of refraction in each of the directions and identify the mineral or material under investigation. The indices α, β, and γ are used to identify the lowest, middle, and highest index of refraction respectively. The x direction, associated with α is called the fast axis. Conversely, the z direction is associated with γ and is the slow direction. Crocidolite has α along the fiber length making it "length-fast". The remainder of the asbestos minerals have the γ axis along the fiber length. They are called "length-slow". This orientation to fiber length is used to aid in the identification of asbestos.

4.3. Polarized Light Technique

Polarized light microscopy as described in this section uses the phase-polar microscope described in Section 3.2. A phase contrast microscope is fitted with two polarizing elements, one below and one above the sample. The polarizers have their polarization directions at right angles to each other. Depending on the tests performed, there may be a compensator between these two polarizing elements. A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train. Light emerging from a polarizing element has its electric vector pointing in the polarization direction of the element. The light will not be subsequently transmitted through a second element set at a right angle to the first element. Unless the light is altered as it passes from one element to the other, there is no transmission of light.

4.4. Angle of Extinction

Crystals which have different crystal regularity in two or three main directions are said to be anisotropic. They have a different index of refraction in each of the main directions. When such a crystal is inserted between the crossed polars, the field of view is no longer dark but shows the crystal in color. The color depends on the properties of the crystal. The light acts as if it travels through the crystal along the optical axes. If a crystal optical axis were lined up along one of the polarizing directions (either the polarizer or the analyzer) the light would appear to travel only in that direction, and it would blink out or go dark. The difference in degrees between the fiber direction and the angle at which it blinks out is called the angle of extinction. When this angle can be measured, it is useful in identifying the mineral. The procedure for measuring the angle of extinction is to first identify the polarization direction in the microscope. A commercial alignment slide can be used to establish the polarization directions or use anthophyllite or another suitable mineral. This mineral has a zero degree angle of extinction and will go dark to extinction as it aligns with the polarization directions. When a fiber of anthophyllite has gone to extinction, align the eyepiece reticle or graticule with the fiber so that there is a visual cue as to the direction of polarization in the field of view. Tape or otherwise secure the eyepiece in this position so it will not shift.

After the polarization direction has been identified in the field of view, move the particle of interest to the center of the field of view and align it with the polarization direction. For fibers, align the fiber along this direction. Note the angular reading of the rotating stage. Looking at the particle, rotate the stage until the fiber goes dark or "blinks out". Again note the reading of the stage. The difference in the first reading and the second is an angle of extinction.

The angle measured may vary as the orientation of the fiber changes about its long axis. Tables of mineralogical data usually report the maximum angle of extinction. Asbestos forming minerals, when they exhibit an angle of extinction, usually do show an angle of extinction close to the reported maximum, or as appropriate depending on the substitution chemistry.

4.5. Crossed Polars with Compensator

When the optical axes of a crystal are not lined up along one of the polarizing directions (either the polarizer or the analyzer) part of the light travels along one axis and part travels along the other visible axis. This is characteristic of birefringent materials.

The color depends on the difference of the two visible indices of refraction and the thickness of the crystal. The maximum difference available is the difference between the α and the γ axes. This maximum difference is usually tabulated as the birefringence of the crystal.

For this test, align the fiber at 45° to the polarization directions in order to maximize the contribution to each of the optical axes. The colors seen are called retardation colors. They arise from the recombination of light which has traveled through the two separate directions of the crystal. One of the rays is retarded behind the other since the light in that direction travels slower. On recombination, some of the colors which make up white light are enhanced by constructive interference and some are suppressed by destructive interference. The result is a color dependent on the difference between the indices and the thickness of the

crystal. The proper colors, thicknesses, and retardations are shown on a Michel-Levy chart. The three items, retardation, thickness and birefringence are related by the following relationship:

$R=t(n_\gamma - n_\alpha)$

R=retardation, t=crystal thickness in μm, and $n_{\alpha,\gamma}$=indices of refraction.

Examination of the equation for asbestos minerals reveals that the visible colors for almost all common asbestos minerals and fiber sizes are shades of gray and black. The eye is relatively poor at discriminating different shades of gray. It is very good at discriminating different colors. In order to compensate for the low retardation, a compensator is added to the light train between the polarization elements. The compensator used for this test is a gypsum plate of known thickness and birefringence. Such a compensator when oriented at 45° to the polarizer direction, provides a retardation of 530 nm of the 530 nm wavelength color. This enhances the red color and gives the background a characteristic red to red-magenta color. If this "full-wave" compensator is in place when the asbestos preparation is inserted into the light train, the colors seen on the fibers are quite different. Gypsum, like asbestos has a fast axis and a slow axis. When a fiber is aligned with its fast axis in the same direction as the fast axis of the gypsum plate, the ray vibrating in the slow direction is retarded by both the asbestos and the gypsum. This results in a higher retardation than would be present for either of the two minerals. The color seen is a second order blue. When the fiber is rotated 90° using the rotating stage, the slow direction of the fiber is now aligned with the fast direction of the gypsum and the fast direction of the fiber is aligned with the slow direction of the gypsum. Thus, one ray vibrates faster in the fast direction of the gypsum, and slower in the slow direction of the fiber; the other ray will vibrate slower in the slow direction of the gypsum and faster in the fast direction of the fiber. In this case, the effect is subtractive and the color seen is a first order yellow. As long as the fiber thickness does not add appreciably to the color, the same basic colors will be seen for all asbestos types except crocidolite. In crocidolite the colors will be weaker, may be in the opposite directions, and will be altered by the blue absorption color natural to crocidolite. Hundreds of other materials will give the same colors as asbestos, and therefore, this test is not definitive for asbestos. The test is useful in discriminating against fiberglass or other amorphous fibers such as some synthetic fibers. Certain synthetic fibers will show retardation colors different than asbestos; however, there are some forms of polyethylene and aramid which will show morphology and retardation colors similar to asbestos minerals. This test must be supplemented with a positive identification test when birefringent fibers are present which can not be excluded by morphology. This test is relatively ineffective for use on fibers less than 1 μm in diameter. For positive confirmation TEM or SEM should be used if no larger bundles or fibers are visible.

4.6. Dispersion Staining

Dispersion microscopy or dispersion staining is the method of choice for the identification of asbestos in bulk materials. Becke line analysis is used by some laboratories and yields the same results as does dispersion staining for asbestos and can be used in lieu of dispersion staining. Dispersion staining is performed on the same platform as the phase-polar analysis with the analyzer and compensator removed. One polarizing element remains to define the direction of the light so that the different indices of refraction of the fibers may be separately determined. Dispersion microscopy is a dark-field technique when used for asbestos. Particles are imaged with scattered light. Light which is unscattered is blocked from reaching the eye either by the back field image mask in a McCrone objective or a back field image mask in the phase condenser. The most convenient method is to use the rotating phase condenser to move an oversized phase ring into place. The ideal size for this ring is for the central disk to be just larger than the objective entry aperture as viewed in the back focal plane. The larger the disk, the less scattered light reaches the eye. This will have the effect of diminishing the intensity of dispersion color and will shift the actual color seen. The colors seen vary even on microscopes from the same manufacturer. This is due to the different bands of wavelength exclusion by different mask sizes. The mask may either reside in the condenser or in the objective back focal plane. It is imperative that the analyst determine by experimentation with asbestos standards what the appropriate colors should be for each asbestos type. The colors depend also on the temperature of the preparation and the exact chemistry of the asbestos. Therefore, some slight differences from the standards should be allowed. This is not a serious problem for commercial asbestos uses. This technique is used for identification of the indices of refraction for fibers by recognition of color. There is no direct numerical readout of the index of refraction. Correlation of color to actual index of refraction is possible by referral to published conversion tables. This is not necessary for the analysis of asbestos. Recognition of appropriate colors along with the proper morphology are deemed sufficient to identify the commercial asbestos minerals. Other techniques including SEM, TEM, and XRD may be required to provide additional information in order to identify other types of asbestos.

Make a preparation in the suspected matching high dispersion oil, e.g., n=1.550 for chrysotile. Perform the preliminary tests to determine whether the fibers are birefringent or not. Take note of the morphological character. Wavy fibers are indicative of chrysotile while long, straight, thin, frayed fibers are indicative of amphibole asbestos. This can aid in the selection of the appropriate matching oil. The microscope is set up and the polarization direction is noted as in Section 4.4. Align a fiber with the polarization direction. Note the color. This is the color parallel to the polarizer. Then rotate the fiber rotating the stage 90° so that the polarization direction is across the fiber. This is the perpendicular position. Again note the color. Both colors must be consistent with standard asbestos minerals in the correct direction for a positive identification of asbestos. If only one of the colors is correct while the other is not, the identification is not positive. If the colors in both directions are bluish-white, the analyst has chosen a matching index oil which is higher than the correct matching oil, e.g. the analyst has used n=1.620 where chrysotile is present. The next lower oil (Section 3.5.) should be used to prepare another specimen. If the color in both directions is yellow-white to straw-yellow-white, this indicates that the index of the oil is lower than the index of the fiber, e.g. the preparation is in n=1.550 while anthophyllite is present. Select the next higher oil (Section 3.5.) and prepare another slide. Continue in this fashion until a positive identification of all asbestos species present has been made or all possible asbestos species have been ruled out by negative results in this test. Certain plant fibers can have similar dispersion colors as asbestos. Take care to note and evaluate the morphology of the fibers or remove the plant fibers in pre-preparation. Coating material on the fibers such as carbonate or vinyl may destroy the dispersion color. Usually, there will be some outcropping of fiber which will show the colors sufficient for identification. When this is not the case, treat the sample as described in Section 3.3. and then perform dispersion staining. Some samples will yield to Becke line analysis if they are coated or electron microscopy can be used for identification.

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Federal Register

Wednesday
August 10, 1994

Part III

Department of The Interior

Fish and Wildlife Service

Commercial Use Fees on National Wildlife Refuges in Alaska; Notice

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Commercial Use Fees on National Wildlife Refuges in Alaska

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of Implementation of Policy.

SUMMARY: Notice is hereby given that special use permit fees for commercial uses on National Wildlife Refuges (refuges) in Alaska have been revised. The revised fee schedule became effective on January 1, 1993. Fees equal to 50% of the fee schedule were charged during 1993, and full fees are being charged in 1994. The public was aware of this fee change through public meetings and other appropriate notice. However, as a policy matter, the U.S. Fish and Wildlife Service (Service) desires to publish this Notice through the **Federal Register**.

The revised fee schedule has been incorporated into the Service Policy Manual for Region 7 (Alaska). The fee revision was needed so that the Service could meet Federal mandates. These mandates require fee determinations to be based on fair market values, and that the Service attempt to recover costs of administering revenue producing commercial activities on refuge lands.

DATES: This revised fee schedule was effective on January 1, 1993.

FOR FURTHER INFORMATION CONTACT: Daryle R. Lons, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, Alaska, 99503; telephone (907) 786–3354.

SUPPLEMENTARY INFORMATION: The Service is implementing the following fee schedule for commercial guides, outfitters, and transporters that are issued special use permits to conduct commercial operations on refuges in Alaska. Fees for other non-recreational types of commercial activities that involve removing marketable resources or utilizing reserved sites will not be based on the following fee schedule. Fees for these types of commercial activities will be determined by the Service's Division of Realty and will be based on fair market analysis surveys. These surveys will be conducted periodically to assure that fees reflect current market values.

The Service considered a number of methods for meeting the required mandates. Four alternatives were given serious consideration and were published in the May 31, 1991, **Federal Register** (56 FR 24827) to receive public comment. These alternatives were: (1) A single fixed fee of $350 for all commercial permittees, (2) a fee schedule based on type of commercial use activity and actual client numbers, (3) a fee schedule based on permittee calculations, made after the permit use period, of 3% of adjusted gross income derived from commercial activities that are authorized by special use permit on refuge lands, and (4) a fee schedule based on permittee estimates, made prior to the permit use period, of 3% of anticipated adjusted gross income derived from commercial activities that are authorized by special use permit on refuge lands.

The Service had proposed to adopt alternative 4 because it appeared that it would be (1) equitable to all commercial use permittees, regardless of the scale of their operation; (2) charging a fair market value; (3) reasonably consistent with the fee schedule of other Federal agencies in Alaska; and (4) cost effective for the government to administer. Thirty-five comments were received from individuals, professional organizations, and state and Federal agencies in response to the published **Federal Register** notice. After review and consideration of the comments received, the Service decided not to implement this alternative. Public comments identified several potential inequities in the originally proposed alternative and strongly supported a flat fee or a client use-day system. A flat fee was reconsidered but was not selected because the Service believes it is not equitable to all commercial operators since the scale of operations is highly variable among users. As a result of public comment, the Service is implementing the following fee system which is based on the type of activity and number of client use-days. The specific fee for each type of client use-day is based on an adjusted three percent of gross receipts figure which returns approximately 1.5–2.0 percent of the typical daily rate charged to clients by commercial guides, outfitters, and transporters in Alaska.

The Service's fee schedule system requires a non-refundable $100.00 administrative fee charged at the issuance of a permit and a predetermined fee for client use-days, based on the activity, charged following each session of use. Client use-day fees for all guiding, outfitting, and transporting commercial operations on Alaska refuges are:

Guiding-Outfitting

A. Brown Bear—$15.00 per client use-day ($100 minimum) on Alaska Peninsula, Becharof, Izembek and Kodiak refuges.
B. Brown/Grizzly Bear—$10.00 per client use-day on all other refuges.
C. Moose and Dall Sheep—$10.00 per client use-day.
D. All Other Hunted Species—$5.00 per client use-day.
E. Sport Fishing—$2.00 per client use-day.
F. River Floating—$2.00 per client use-day.
G. Photography/Birding/Wilderness Adventures/Other—$2.00 per client use-day.
H. All Transporters—$2.00 per client use-day.

The Service will review and issue an adjustment to these fees every three years. Adjustments will be based on the Implicit Price Deflator Index (IPDI) which is compiled annually by the Department of Commerce and is published in February of each year as part of the "Economic Report of the President" for Congress.

Permittees will be required to obtain a special use permit from each refuge that they operate on and full fees will be collected by each refuge. Client use-day fees will be based on actual client use days and be in addition to the $100 administrative fee. A "client use-day" shall be defined as one calendar day, or any portion thereof, for each client using the refuge. If clients are concurrently participating in more than one activity during the same calendar day, the highest client use-day rate will be used for that day.

The permittee is responsible for record keeping and reporting the actual number of client use-days to the refuge manager and shall be required to report actual use within 30 days of the end of the authorized use period, unless otherwise stated in the permit. The refuge manager is responsible for computing the actual fees owed the government and issuing a bill for collection within 30 days of receipt of the use report. Permittees are responsible to pay the fees within 30 days of receipt of the bill for collection. A permittee will not be issued a new special use permit until all fees have been paid. Special use permits issued for several year terms may be revoked during the term of the permit if annual fees are not paid within the required 30 day period.

Fees for reserved land sites (e.g., cabins, tent platforms, caches, etc.) associated with commercial operations remained at the $100 flat fee during 1993. The Division of Realty conducted a fair market value analysis survey for reserved land sites on a refuge-by-refuge basis during 1993. Revised reserved land site fees will become effective in late 1994.

Dated: July 20, 1994.

George T. Frampton, Jr.,

Assistant Secretary for Fish and Wildlife and Parks.

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Part IV

Department of Education

34 CFR Parts 200 and 201
Chapter 1 Program in Local Educational Agencies and Chapter 1—Migrant Education Program; Final Rule

DEPARTMENT OF EDUCATION

34 CFR Parts 200 and 201

RIN 1810–AA70

Chapter 1 Program in Local Educational Agencies and Chapter 1—Migrant Education Program

AGENCY: Education.

ACTION: Final regulations.

SUMMARY: The Secretary amends the regulations governing Part A and Part D, Subpart 1 of Chapter 1 of Title I of the Elementary and Secondary Education Act of 1965. Part A of Chapter 1 provides financial assistance through State educational agencies (SEAs) to local educational agencies (LEAs) to meet the special educational needs of educationally deprived children in school attendance areas with high concentrations of children from low-income families and children in local institutions for neglected or delinquent children. Part D of Chapter 1 authorizes a Migrant Education Program (MEP) that provides financial assistance to SEAs to establish and improve programs to meet the special educational needs of migratory children of migratory agricultural workers or fishermen.

These amendments afford flexibility to States that have developed assessment systems that support their systemic education reform efforts but that are inconsistent with the national evaluation standards in Subpart H of 34 CFR Part 200 and Subpart E of 34 CFR Part 201. These regulations contain less prescriptive national standards that enable States to request an exception to the generally applicable national evaluation standards in order to use their own assessment systems to evaluate the effectiveness of their Chapter 1 and MEP programs.

EFFECTIVE DATE: These regulations take effect either 45 days after publication in the **Federal Register** or later if the Congress takes certain adjournments, except that compliance is not required with the information collection requirements in § 200.90 until the information collection requirements contained in that section have been submitted by the Department of Education and approved by the Office of Management and Budget under the Paperwork Reduction Act of 1980. If you want to know the effective date of these regulations, call or write the Department of Education contact person. A document announcing the effective date will be published in the **Federal Register**.

FOR FURTHER INFORMATION CONTACT: For Part 200, Wendy Jo New, U.S. Department of Education, 400 Maryland Avenue S.W., Portals Building, Room 4400, Washington, D.C. 20202–6132. Telephone: (202) 260–0982. For Part 201, James English, U.S. Department of Education, 400 Maryland Avenue S.W., Portals Building, Room 4104, Washington, D.C. 20202–6135. Telephone: (202) 260–1394. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 between 8 a.m. and 8 p.m., Eastern time, Monday through Friday.

SUPPLEMENTARY INFORMATION: On March 10, 1994, the Secretary published a notice of proposed rulemaking (NPRM) in the **Federal Register** (59 FR 11444–46), that proposed conditions for granting exceptions to the national evaluation standards in Subpart H of Part 200 and in Subpart E of Part 201 to enable States that are implementing new assessment systems that support statewide education reform to use those assessments—under less prescriptive national standards—to measure the effectiveness of their Chapter 1 and MEP programs. Under the NPRM, the Secretary could have approved a State's request for an exception to the generally applicable Chapter 1 national evaluation standards if the State had an assessment system that had been developed to support the State's education reform efforts, the assessment system provided information about the yearly performance of each Chapter 1 school and could be aggregated for the LEA as a whole, and that information was from at least one grade level in each school, and measured student achievement in basic and more advanced skills and challenging subject matter. The same standards were proposed to apply to the MEP, except that the assessment system would have to provide a statewide estimate of the yearly performance of migratory children in the State, rather than information on individual schools. The NPRM also proposed to permit States to request exceptions for particular LEAs and operating agencies that, absent State systems, have local assessment systems in place that support their education reform efforts and meet these same standards.

These final regulations make the following changes to the NPRM. Most significantly, §§ 200.90(b) and 201.57(b) have been revised to require that, in addition to the conditions in the NPRM, a State assessment system for which an exception is being requested (1) must yield consistent results that accurately reflect what the assessment system was designed to measure; and (2) does not impair an SEA's or LEA's ability to account for results under Chapter 1 or the MEP. The Secretary has added these standards to ensure that State assessment systems being developed to support systemic education reform efforts are of high quality and that exceptions under these regulations would only be granted if evaluation results provide meaningful indicators about the effectiveness of Chapter 1 and MEP programs.

In addition, § 200.90(b) has been revised to make clear that a State assessment system must provide information from at least one grade level in each Chapter 1 school. Sections 200.90(c) and 201.57(c) have also been revised to clarify that an SEA may seek an exception for LEAs or operating agencies that have assessment systems linked to local reform efforts that meet the same standards that apply to State assessment systems. Finally, § 200.80(a) has been revised to correct an erroneous cross-reference.

These regulations support the efforts of those States that will be voluntarily implementing reform plans under the Goals 2000: Educate America Act (Goals 2000). Section 306(c) of Goals 2000 requires the reform plans to include a description of the process States will use to develop State assessments aligned with the State's content standards and that the assessments be for all students, including students with diverse learning needs. These regulations will allow States that have assessment systems tied to statewide education reform, developed under Goals 2000 or another reform effort, to avoid duplication by using their statewide assessments for Chapter 1 and MEP purposes if they meet less prescriptive national standards contained in these regulations.

In granting an exception, the Secretary will not be waiving any statutory requirements. SEAs and LEAs will continue to evaluate the effectiveness of their Chapter 1 programs under section 1019, in accordance with less prescriptive standards contained in these regulations. SEAs and LEAs will also continue to perform the annual review required under section 1021(a), measure sustained program gains under sections 1019(a)(3) and 1021(a)(2), identify schools and students in need of program improvement under section 1021(b) and (f), and meet schoolwide project accountability requirements under section 1015(e), using the State assessment and any other sources of information deemed appropriate. Similarly, under the MEP, SEAs will still need to ensure that they and their

operating agencies adhere to the requirements of sections 1012(b), 1019(b), and 1202(a)(6) to use desired outcomes for evaluating performance, to collect and report demographic and performance data, and to examine sustained gains for formerly migratory children.

The Secretary wishes to emphasize that no State is required to make any changes in its Chapter 1 or MEP testing programs as a result of these regulations. Rather, the exceptions are intended to provide flexibility to enable States to use their own assessment systems for Chapter 1 and MEP purposes if they wish to do so.

Analysis of Comments and Changes

In response to the Secretary's invitation in the NPRM, 17 parties submitted comments on the proposed regulations. An analysis of the comments is published as an appendix to this document.

Executive Order 12866

These final regulations have been reviewed in accordance with Executive Order 12866. Under the terms of the order, the Secretary has assessed the potential costs and benefits of this regulatory action.

The potential benefits associated with these regulations are clear. Rather than continuing to operate multiple assessment systems for Federal and State purposes, some States may use their State systems to evaluate their Chapter 1 and MEP programs. Moreover, the potential costs associated with these regulations are negligible. Because the regulations permit States to use their own assessment systems, States will incur few, if any, additional costs. To the contrary, these regulations will result in reduced costs for States that might otherwise have had to operate multiple assessment systems. The Secretary has also determined that this regulatory action does not unduly interfere with State, local, and tribal governments in the exercise of their governmental functions.

Paperwork Reduction Act of 1980

Section 200.90 contains information collection requirements. As required by the Paperwork Reduction Act of 1980, the Department of Education will submit a copy of these sections to the Office of Management and Budget for its review. (44 U.S.C. 3504(h)).

These proposed regulations would affect SEAs and LEAs that have developed assessment systems that support their educational reform efforts but that are inconsistent with the national evaluation standards in Subpart H of Part 200 or Subpart E of Part 201. The Department needs the information to grant exceptions to the national evaluation standards.

A one-time public reporting and recordkeeping burden for this collection of information is estimated to average two hours per response for a maximum of 52 respondents, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Organizations and individuals desiring to submit comments on the information collection requirements should direct them to the Office of Information and Regulatory Affairs, OMB, Room 10235, New Executive Office Building, Washington, D.C. 20503; Attention: Daniel J. Chenok.

List of Subjects

34 CFR Part 200

Administrative practice and procedure, Education of disadvantaged, Elementary and secondary education, Grant programs—education, Juvenile delinquency, Neglected, Private schools, Reporting and recordkeeping requirements, State-administered programs.

34 CFR Part 201

Children, Coordination, Education, Eligibility, Evaluation, Grant programs—education, Identification and recruitment, Local educational agencies, Migrant student record transfer system, Migratory children, Migratory workers, Needs assessment, Priorities, Reporting and recordkeeping requirements, Special educational needs, State educational agencies, Subgrants

Dated: August 3, 1994.

Richard W. Riley,

Secretary of Education

(Catalog of Federal Domestic Assistance Numbers: 84.010, Chapter 1 Program in Local Educational Agencies; 84.011, Migrant Education Basic State Formula Grant Program; 84.012, Chapter 1 Programs—State Administration)

The Secretary amends Parts 200 and 201 of Title 34 of the Code of Federal Regulations as follows:

PART 200—CHAPTER 1 PROGRAM IN LOCAL EDUCATIONAL AGENCIES

1. The authority citation for Part 200 is revised to read as follows:

Authority: 20 U.S.C. 2701–2731, 2821–2838, 2851–2854, 2891–2901, unless otherwise noted.

2. Section 200.80 is amended by revising paragraph (a) introductory text to read as follows:

§ 200.80 How does an LEA evaluate student achievement?

(a) An LEA shall evaluate student achievement under § 200.35(a)(1)(i)(B) as follows:

* * * * *

3. An undesignated heading entitled "Exception" and a new § 200.90 are added to Subpart H to read as follows:

Exception

§ 200.90 May an SEA request an exception to the requirements in this subpart?

(a) An SEA may request, in writing, an exception to the requirements in other sections of this subpart if the SEA desires to use a State assessment system developed to support its education reform efforts for the purpose of evaluating the effectiveness of its Chapter 1 programs.

(b) The Secretary may grant an SEA's request if the State assessment system meets the following national standards:

(1) The State system provides information that can be aggregated for each LEA as a whole about the yearly performance of each Chapter 1 school. This information must be from at least one grade level in each Chapter 1 school and must be based on student achievement in basic and more advanced skills and challenging subject matter.

(2) The State system yields consistent results that accurately reflect what the assessment system was designed to measure.

(3) The State system does not impair an SEA's or LEA's ability to account for results under Chapter 1.

(c) An SEA may request an exception for an LEA that has a local assessment system that meets the national standards in paragraphs (a) and (b) of this section.

(Authority: 20 U.S.C. 2729(a), 2835)

PART 201—CHAPTER 1—MIGRANT EDUCATION PROGRAM

4. The authority citation for Part 201 continues to read as follows:

Authority: 20 U.S.C. 2781–2782, unless otherwise noted.

5. Section 201.57 is added to Subpart E to read as follows:

§ 201.57 Exception to evaluation requirements.

(a) An SEA may request, in writing, an exception to the requirements in §§ 201.51(a)(1)(ii), 201.52(b)(1), 201.53, and 201.55 of this subpart if the SEA desires to use a State assessment system, developed to support its education

reform efforts, for the purpose of evaluating the effectiveness of its Chapter 1 Migrant Education Program.

(b) The Secretary may grant an SEA's request if the State assessment system meets the following national standards:

(1) The State system provides a statewide estimate of the yearly performance of migratory children in the State. This information must be from at least one grade level and must be based on student achievement in basic and more advanced skills and challenging subject matter.

(2) The State system yields consistent results that accurately reflect what the assessment system was designed to measure.

(3) The State system does not impair an SEA's or operating agency's ability to account for results under the MEP.

(c) An SEA may request an exception for an operating agency that has an assessment system that meets the national standards in paragraphs (a) and (b) of this section.

(Authority: 20 U.S.C. 2722, 2729, 2782, 2835)

Appendix to This Final Rule—Analysis of Comments and Changes

(Note: This appendix will not be codified in the Code of Federal Regulations)

The Department received comments on these regulations from 17 commenters, 13 of whom supported the regulations.

Comment: One commenter suggested that the Department used the word "exception" in the proposed regulations because the Department cannot grant waivers. The commenter argued that there is no meaningful distinction between "exception" and "waiver" and, therefore, the Secretary lacks the authority to grant "exceptions" to requirements that evaluations of Chapter 1 and MEP programs be based on the current national standards.

Discussion: It is, of course, true that the Secretary cannot waive statutory or regulatory requirements absent specific authority. As a result, the Secretary is engaging in formal rulemaking to make exceptions to the generally applicable standards by adopting less prescriptive standards that would apply in the case of States that request authority to use testing tied to State systemic reform efforts in lieu of separate Chapter 1 evaluations. It is important to recognize that the Secretary would not be granting exceptions to any statutory requirements. Rather, he would be granting exceptions to particular regulatory provisions that were initially promulgated and have now been revisited through the appropriate rulemaking process. By authorizing the Secretary to grant "exceptions," the regulations clarify that the generally applicable national evaluation standards are still the primary provisions governing Chapter 1 and MEP evaluations. The Secretary recognizes, however, that some States, as part of their systemic State education reform efforts, have developed new assessment systems that may be inconsistent with these standards because, for example, they are not based on national norms or do not test children in every grade. These regulations contain less prescriptive national standards that permit these States to use their own assessment systems to evaluate the effectiveness of their Chapter 1 and MEP programs, rather than requiring these States to administer separate tests purely for Chapter 1 and MEP purposes.

Changes: None.

Comment: One commenter asserted that the regulations do not comply with the Chapter 1 statute. According to the commenter, the Secretary is "waiving all Chapter 1 testing requirements * * * without adopting any substitute that can equally ensure compliance with the statute." In particular, the commenter contended that the regulations would eliminate the requirement to use "objective measurements" of "individual student achievement," thereby shifting the focus away from individual students. The commenter also argued that the proposed regulations would undermine the statutory requirement that improved student performance be sustained for more than one year.

Discussion: These regulations neither waive nor are inconsistent with any statutory requirements. For example, the basic evaluation requirement in section 1019(a) of Chapter 1 requires an LEA to evaluate the effectiveness of *programs* assisted under Chapter 1. The LEA must use "objective measurement of individual student achievement in basic skills and more advanced skills, aggregated for the LEA as a whole" as an indicator of the impact of the *program*. Under the type of State assessment system to which the exception would apply, all of these requirements would have to be met. The assessments would have to—use objective measures; measure basic and more advanced skills; assess the achievement of individual children; and be capable of being aggregated for each LEA as a whole. Nothing in section 1019(a), however, requires these assessment systems to assess each child served in Chapter 1 or to be based on national norms; rather, the Secretary imposed these requirements through the current national standards. Moreover, contrary to the commenter's interpretation, the requirement in section 1019(a)(3) regarding "sustained gains" relates to improved performance of the *program* over a period of more than one year, not to individual student performance.

As the preamble indicates, under these final regulations SEAs and LEAs must continue to meet all statutory assessment requirements. In particular, SEAs and LEAs must still evaluate the effectiveness of their Chapter 1 programs under section 1019, perform the annual review required under section 1021(a), measure sustained program gains under sections 1019(a)(3) and 1021(a)(2), identify schools and students in need of program improvement under section 1021 (b) and (f), and meet schoolwide project accountability requirements under section 1015(e). Similarly, under the MEP, SEAs must ensure that they and their operating agencies adhere to the requirements of sections 1012(b), 1019(b), and 1202(a)(6) to use desired outcomes for evaluating performance, to collect and report demographic and performance data, and to examine sustained gains for formerly migratory children. If the Secretary grants an exception under these final regulations, these requirements may be met using the State assessment and any other sources of information deemed appropriate. Thus, if a State assessment system does not provide sufficient information to meet one or more of these requirements, the SEA, LEA, or operating agency would have to supplement that system with other appropriate information.

Changes: None.

Comment: One commenter asserted that the proposed regulations did not satisfy the Administrative Procedure Act. The commenter specifically argued that the proposed regulations should contain the criteria on which exceptions would be based so that commenters could adequately respond.

Discussion: In accordance with the Administrative Procedure Act, the proposed regulations contained adequate notice of the standards that States would have to meet to be excepted from the generally applicable national evaluation standards. Those standards were—the assessment system has been developed to support a State's education reform efforts; the system provides information about the yearly performance of each Chapter 1 school; and the information provided is from at least one grade level, measures student achievement in basic and more advanced skills and challenging subject

matter, and can be aggregated for the LEA as a whole.

However, in response to several comments, the Secretary has added two additional standards and one clarification. The assessment system must yield consistent results that accurately reflect what the assessment system was designed to measure. The use of the assessment system may not impair an SEA's or LEA's ability to account for results under Chapter 1. The information from the assessment system must be from at least one grade level in each Chapter 1 school. Similar standards apply to the MEP, except that the system must provide a statewide estimate of the yearly performance of migratory children in the State, rather than information on individual schools.

Changes: Two additional standards have been added to §§ 200.90(b) and 201.57(b). The State assessment system must yield consistent results that accurately reflect what the assessment system was designed to measure, and use of the system may not impair an SEA's or LEA's ability to account for results under Chapter 1 or the MEP. In addition, § 200.90(b)(1) has been revised to make clear that the assessment system must provide information from at least one grade level in each Chapter 1 school.

Comment: One commenter contended that the Secretary's explanation for why these regulations are needed was inadequate. In the commenter's view, the Secretary offered only "an assortment of unsubstantiated policy-oriented statements in lieu of hard, objective facts." The commenter concluded that the Secretary is trying to change the national evaluation standards by "administrative fiat," without any explanation of the reasons and supporting evidence for the changes.

Discussion: The Secretary has articulated quite clearly in the preamble to both the proposed and final regulations why he is taking this action. The national evaluation standards were adopted in 1989 and represented the best thinking at that time about how to implement the statutory evaluation requirements. They were predicated largely on the perceived need to use a measure that would provide data that could be aggregated for the Nation—i.e., nationally normed tests or tests equated with national norms—even though the statute itself does not require aggregation to either the State or national level.

Since then, two developments of national significance have required a change in those national standards. First, a number of States have developed new assessment systems, linked to their statewide education reform efforts, to improve the quality of education in their States. These assessment systems are tied to high State standards for what children should know and be able to do, but in some instances are inconsistent with the national evaluation standards because they do not routinely rely on nationally normed tests and typically only assess children in certain grades. As a result, these States must operate separate assessment systems: ones that they use to make informed decisions about the effectiveness of education programs in their State; and ones that they use only for Chapter 1 or MEP purposes.

As a related matter, major educational reform legislation, the Goals 2000: Educate America Act (Pub. L. 103–227), became law on March 31, 1994. Section 306(c) of Goals 2000 requires reform plans developed under the statute to include a description of the process a State will use to develop State assessments aligned with the State's content standards and that the assessments be for all students, including students with diverse learning needs. These regulations will allow States that have assessment systems tied to statewide education reform, developed under Goals 2000 or another effort, to obtain exceptions from existing Chapter 1 and MEP evaluation requirements and, subject to less prescriptive standards in these regulations, use their statewide assessments for Chapter 1 and MEP purposes. By allowing those States that already have developed assessment systems tied to statewide education reform efforts to obtain exceptions from existing Chapter 1 and MEP evaluation requirements, these regulations permit those States to focus their energies on the new assessments without having to implement a separate assessment system for Chapter 1 and MEP that may not support reform efforts. The Secretary believes that requiring these States to operate separate assessment systems for Chapter 1 and MEP purposes serves neither the interests of participating children nor the Federal programs involved.

Changes: None.

Comment: One commenter contended that these regulations are fundamentally flawed because the "need" for the exception is wholly without merit. Defending nationally normed tests, the commenter disputed that new State assessment systems would provide more meaningful data and asserted that new and traditional assessment systems are not mutually exclusive.

Discussion: The commenter may have missed the point of these regulations. The regulations do not require any State to make changes in its Chapter 1 or MEP testing programs. Even a State that has developed an assessment system to support its education reform efforts will not be required to use that system to evaluate its Chapter 1 or MEP programs. At the same time, however, the Secretary does not want the current national evaluation standards to stand in the way of a State's efforts, in reforming its educational system, to define what all students should be expected to know, train instructional staff to teach those subjects, and assess whether students, in fact, have learned what they should know. In particular, the Secretary believes that States that are pursuing this kind of reform, and that have already developed their own measures for assessing what all children should know, should be free to use those assessments to evaluate their States' Chapter 1 and MEP programs if they are satisfied that these measures provide more meaningful information on the progress of participating children than does use of the current national standards. The current national evaluation standards preclude a State from making this choice. To the extent that a State's assessment system does not rely on a nationally normed test or fails to assess every participating child in grades 2 through 12, it is inconsistent with, and therefore cannot be used to satisfy, the current national evaluation standards.

Changes: None.

Comment: One commenter interpreted the Secretary's desire to eliminate dual testing as a determination that multiple measures are inconsistent with the current Chapter 1 evaluation requirements. The commenter asserted that a rationale for the proposed exception premised on a single assessment theory is inconsistent with current law.

Discussion: The commenter may have misinterpreted the Secretary's rationale for proposing an exception to the national evaluation standards. The Secretary is not requiring use of a sole assessment criterion. Rather, like the commenter, the Secretary encourages multiple assessment measures and anticipates that most, if not all, State assessment systems qualifying for an exception would consist of multiple measures. On the other hand, the Secretary is trying to eliminate the need for a State to administer dual tests, i.e., administering a particular type of test merely to satisfy the Chapter 1 national evaluation standards while administering an acceptable alternative

assessment system for the State's own purposes.

Changes: None.

Comment: One commenter suggested that, instead of granting exceptions, the Secretary revise the regulations to require the use of multiple measures, including norm-referenced tests. According to the commenter, although it is appropriate to use additional assessments that could provide critical evidence of whether children are performing at an appropriate level, norm-referenced tests should also be used because they meet the technical standards of reliability and validity.

Discussion: As noted above, the Secretary encourages the use of multiple assessment measures. The Secretary does not agree that norm-referenced tests should be required as one measure.

Changes: None.

Comment: One commenter asked whether it would be possible for an SEA or LEA to have a mixed system—for example, norm-referenced tests to measure sustained effects; alternative measures for assessing math and reading.

Discussion: The regulations permit States to use any assessment measures or combination of measures that are appropriate and that meet new, less prescriptive national standards.

Changes: None.

Comment: One commenter suggested that, if an exception is granted, the eligibility standards for entry into Chapter 1 programs would be relaxed to the point that subjective teacher recommendations would determine participation.

Discussion: These regulations do not alter the criteria for identifying and selecting children for participation in Chapter 1 or MEP programs. Under Chapter 1, for example, children must still be identified as educationally deprived "on the basis of educationally related objective criteria established by the [LEA] which include written or oral testing instruments." This requirement, however, does not mandate a specific type of assessment, particularly one that uses a nationally normed test. An LEA may use whatever educationally related objective criteria it deems appropriate. Thus, to the extent the State assessment system meets the LEA's needs, it may also serve to identify and select children for participation in Chapter 1. On the other hand, to the extent the State assessment system does not provide sufficient information on specific children, the LEA would need to use additional measures to select children for participation in Chapter 1 programs.

Changes: None.

Comment: One commenter felt that accountability could be skewed if test results are obtained only from a single grade level. Another commenter feared that information from only one grade level would not provide adequate evidence of school effectiveness.

Discussion: There is no statutory or regulatory requirement that a State limit its assessment of its Chapter 1 or MEP programs to a single grade level per school. Indeed, if a State believes that one grade does not adequately represent the progress of children in Chapter 1 or MEP or the effectiveness of a school, it should assess children in other grades to achieve an adequate picture of their progress.

Changes: None.

Comment: Two commenters suggested that, if an exception is granted, there would be no comparative data on student achievement as there now are with pre- and post-norm-referenced test scores.

Discussion: It is true that comparative data on individual children would not be required under an exception just as it is not required under the statute. However, regardless of whether a State assessment system includes comparative data, nothing would prevent an LEA from augmenting the State assessment system to obtain comparative data if the LEA believes the data would be useful.

Changes: None.

Comment: Several commenters suggested that the basic technical standards contained in § 200.81 of the Chapter 1 regulations be maintained.

Discussion: The Chapter 1 statute does not mandate that specific technical standards be prescribed. Moreover, exceptions granted under these regulations would govern a limited period from the present until the reauthorization of Chapter 1 takes effect. The Secretary does not want to prescribe technical standards for this limited period that may run counter to standards that may be required under reauthorization. In addition, these regulations come at a time when the testing community, in general, is grappling with new forms of assessments that better measure what children should know and be able to do and redefining what technical standards best meet the needs of those assessments. The technical standards in § 200.81 of the current regulations are often construed as prohibiting assessments other than those that are nationally normed or those that are modeled after these tests.

The Secretary is very concerned, however, that State assessment systems being developed to support systemic education reform efforts are of high quality and useful and that exceptions under these regulations only would be granted where evaluation results under Chapter 1 and the MEP provide meaningful indicators about the progress under Chapter 1 and MEP. The Secretary, therefore, is requiring under these regulations the following basic technical standards for the assessment system: (1) that the system yields consistent results and (2) that those results accurately reflect what the assessment system was designed to measure. The Secretary has determined that to impose any additional technical standards on new assessment measures for the Chapter 1 and MEP programs is not necessary to ensure that the results of evaluations of these programs are sufficiently meaningful and useful. The Secretary is confident that the other requirements of these regulations ensure that a State would not implement a new assessment system and make educational judgments based on results from that system until the State has determined that the assessment accurately measures what children are expected to know and be able to do.

Changes: As noted above, §§ 200.90(b) and 201.57(b) have been revised to require that an assessment system for which an exception has been requested must yield consistent results that accurately reflect what the assessment system was designed to measure and may not impair the SEA's or LEA's ability to account for results under Chapter 1 or the MEP.

Comment: One commenter asked whether the feeder pattern concept would be acceptable in LEAs with schools that do not contain a grade in which the State administers an assessment. For example, if a State assessment consists of a test in third grade, the commenter asked whether it would be permissible for schools with only grades K–2 to be considered part of a K–6 grade span. Another commenter suggested adding clarifying language that information be available from at least one grade "in each Chapter 1 school."

Discussion: The proposed regulations stated that a State assessment system must provide information about the yearly performance of *each* Chapter 1 school and that this information must be from at least one grade level. It was the Secretary's assumption that, to meet this requirement, a State's assessment system would have to provide information from at least one grade level in each Chapter 1 school. To clarify this assumption, however, the regulations have been revised accordingly.

Changes: Section 200.90(b) has been revised to clarify that assessment information must be collected from at least one grade level in each Chapter 1 school.

Comment: One commenter asserted that "achievement of basic and more advanced skills all children are expected to master" is clearer than "and challenging subject matter" and suggested that the regulations be revised to state that the assessment must provide an assessment of the degree to which Chapter 1 students have mastered the basic and more advanced skills all children are expected to master.

Discussion: The Secretary believes that in the context of these regulatory amendments "basic and more advanced skills all children are expected to master" implies that, for Chapter 1 purposes, lower standards may be established for all children. The Secretary believes it is essential that Chapter 1 participants as well as other children be taught challenging subject matter and assessed to determine whether that subject matter has been learned.

Changes: None.

Comment: One commenter asked whether an LEA could be granted an exception to use a local assessment system or whether an exception could only apply to a State assessment system. The commenter believed the regulations to be unclear in this area.

Discussion: The Secretary intends that an SEA may request an exception either for a State assessment system that supports statewide systemic education reform efforts or for an individual LEA that has a local assessment system that supports its local reform efforts.

Changes: Sections 200.90(c) and 201.57(c) have been revised to clarify that an SEA may request an exception for an LEA that has an assessment system that supports its local systemic education reform efforts and meets the other standards in the regulations.

Comment: One commenter asked whether, if an exception is granted, the alternative assessment measures may be used for determining aggregate performance under the local annual review for program improvement as well as for local evaluation.

Discussion: If an exception is granted, the alternative assessment measures may be used for any purposes for which they are appropriate.

Changes: None.

Comment: One commenter suggested that the definition of desired outcomes in § 200.6 be changed or deleted, consistent with the intent of the NPRM. The commenter objected to that portion of the definition linking desired outcomes to aggregate performance and, thus, to scores on norm-referenced tests. The commenter also contended that this definition will frustrate the intent of these final regulations because LEAs would still be required to set their desired outcomes in terms of scores on norm-referenced tests.

Discussion: Changing the definition of "desired outcomes" in § 200.6 is outside the scope of this rulemaking. To make the changes the commenter has suggested would require the Secretary to first publish an additional NPRM. The Secretary does not believe, however, that this definition will frustrate the intent of these final regulations. If a State or LEA is granted an exception to the current national evaluation standards, the alternative assessment may be used for any appropriate purposes, including determining aggregate performance. Thus, if nationally normed tests are not part of the alternative assessment, scores on those tests would not be used to determine aggregate performance or to define desired outcomes.

Changes: None.

Comment: One commenter recommended that the cross-reference contained in § 200.80(a) to § 200.35(a)(1)(ii), which relates to assessment of students' progress in the regular program, be corrected to refer to § 200.35(a)(1)(i)(B), which relates to assessment of student achievement, aggregated for the LEA as a whole, in accordance with the national standards in Subpart H.

Discussion: The Secretary agrees with the commenter.

Changes: Section 200.80(a) has been revised to correctly reference § 200.35(a)(1)(i)(B).

[FR Doc. 94–19433 Filed 8–9–94; 8:45 am]

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federal register

Wednesday
August 10, 1994

Part V

Department of Education

Office of Special Education and Rehabilitative Services

34 CFR Parts 350, et al.
National Institute on Disability Rehabilitation Research; Proposed Rule

DEPARTMENT OF EDUCATION

Office of Special Education and Rehabilitative Services

34 CFR Parts 350, 351, 352, and 353

RIN 1820–AB01

National Institute on Disability Rehabilitation Research

AGENCY: Education.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Secretary proposes to amend existing regulations for certain programs administered by the National Institute on Disability and Rehabilitation Research (NIDRR). These proposed amendments result primarily from the Rehabilitation Act Amendments of 1992 (the Amendments). The proposed regulations add new definitions and program activities consistent with the Amendments and reflect new statutory requirements.

DATES: Comments must be received on or before September 26, 1994.

ADDRESSES: All comments concerning these proposed regulations should be addressed to Betty Jo Berland, U.S. Department of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202, Switzer Building, Room 3422. A copy of any comments that concern information collection requirements should also be sent to the Office of Management and Budget at the address listed in the Paperwork Reduction Act section of this preamble.

FOR FURTHER INFORMATION CONTACT: Betty Jo Berland. Telephone: (202) 205–9739. Individuals who use a telecommunications device for the deaf (TDD) may call the TDD number at (202) 205–5516.

SUPPLEMENTARY INFORMATION: These proposed regulations primarily implement statutory changes made by the Rehabilitation Act Amendments of 1992 (Pub. L. 102–569). Some of the changes are to conform terminology of the regulations with terminology in the Act, specifically in the use of "individual with a disability", "children with disabilities", "individual with a mental disability", and similar phrases to replace phrases using the word "handicapped", "handicapped individual", or "disabled individual".

These proposed regulations in § 350.4 include new statutory definitions for many of the terms used in Section 7 of the Rehabilitation Act, including the definitions of such key terms as "disability", "individual with a disability", "rehabilitation technology" and "rehabilitation engineering", and "research utilization". The NPRM further reflects new statements in the statute about the purpose of each of the programs and the activities authorized within them.

These proposed regulations in § 350.21 implement Section 21(b)(6) of the Act, which states that all applicants must address the needs of individuals with disabilities from minority backgrounds. They also include suggestions for ways to meet this requirement, and incorporate attention to needs of minorities with disabilities into the selection criteria for each of the four programs addressed in this NPRM. The NPRM in § 350.41 reflects the new statutory requirement in Section 20 of the Act that all funded projects must make applicants for or recipients of vocational rehabilitation services and their families aware of the Client Assistance Program in their States.

These proposed regulations in §§ 352.33 and 353.33 also include the new statutory standard 60-month grant periods for RRTCs in Section 204(b)(2)(L) and RERCs in Section 204(b)(3)(E), and specify conditions under which awards of lesser duration are appropriate under the law. The NPRM in § 350.20 describes the conditions under which applicants must send copies of their applications to the Vocational Rehabilitation agencies in their States, as required by statute. This provision clarifies Sections 204(c) and 301(i) of the current law and regulations by describing the context in which transmittal of these applications would be appropriate.

These proposed regulations in §§ 352.40 and 353.40 state that each RRTC and RERC must have an advisory board, of which the majority of the members must be individuals with disabilities, their parents, family members, guardians, advocates, or authorized representatives. This would extend the new statutory requirement in Section 204(b)(3)(D)(II) of the Act—that certain types of RERCs must have such advisory boards—to all RERCs and RRTCs. The Secretary has determined that most RRTCs and RERCs have advisory boards that meet or approach meeting this requirement. It should not be a hardship for the remaining centers to meet this requirement. The overwhelming importance of involving the Department's constituents—in this case, individuals with disabilities and their families or representatives—in activities supported by the Department makes this requirement imperative.

These proposed regulations support the National Education Goals, particularly National Education Goal 5, which calls for every adult American to be literate and to possess the skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Executive Order 12866

1. Assessment of Costs and Benefits

These proposed regulations have been reviewed in accordance with Executive Order 12866. Under the terms of the order the Secretary has assessed the potential costs and benefits of this regulatory action.

The potential costs associated with the proposed regulations are those resulting from statutory requirements and those determined to be necessary for administering this program effectively and efficiently. Burdens specifically associated with information collection requirements, if any, are identified and explained elsewhere in this preamble under the heading *Paperwork Reduction Act of 1980.*

In assessing the potential costs and benefits—both quantitative and qualitative—of the proposed regulations, the Secretary has determined that the benefits of the proposed regulations justify the costs.

The Secretary has also determined that this regulatory action does not unduly interfere with State, local, and tribal governments in the exercise of their governmental functions.

To assist the Department in complying with the specific requirements of Executive Order 12866, the Secretary invites comments on whether there may be further opportunities to reduce any potential costs or increase potential benefits resulting from these proposed regulations without impeding the effective and efficient administration of the program.

2. Clarity of the regulations

Executive Order 12866 requires each agency to write regulations that are easy to understand.

The Secretary invites comments on how to make these proposed regulations easier to understand, including answers to questions such as the following: (1) Are the requirements in the proposed regulations clearly stated? (2) Do the regulations contain technical terms or other wording that interferes with their clarity? (3) Does the format of the regulations (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce their clarity? Would the regulations be easier to understand if they were divided into more (but shorter) sections? (A "section" is preceded by the symbol "§" and a

numbered heading; for example, § 350.3 *What regulations apply to these programs?)* (4) Is the description of the regulations in the "Supplementary Information" section of this preamble helpful in understanding the regulations? How could this description be more helpful in making regulations easier to understand? (5) What else could the Department do to make the regulations easier to understand?

A copy of any comments that concern how the Department could make these proposed regulations easier to understand should be sent to Stanley M. Cohen, Regulations Quality Officer, U.S. Department of Education, 400 Maryland Avenue SW., (Room 5125, FOB–6), Washington, D.C. 20202–2241.

Regulatory Flexibility Act Certification

The Secretary certifies that these proposed regulations will not have a significant economic impact on a substantial number of small entities. The small entities that would be affected by applying for Federal funds under these programs. However, the regulations will not have a significant economic impact on the entities affected because the regulations will not impose excessive regulatory burdens or require unnecessary Federal supervision.

Paperwork Reduction Act of 1980

Sections 350.20, 350.21, 350.34, 352.31, and 353.31 contain information collection requirements. As required by the Paperwork Reduction Act of 1980, the Department of Education will submit a copy of these sections to the Office of Management and Budget (OMB) for its review.

Public and private entities, including institutions of higher education and Indian tribes and tribal organizations, are eligible to apply for awards under these programs. The Department uses this information to assist in making awards. The annual public reporting burden for these programs is estimated to be 30 hours.

Organizations and individuals desiring to submit comments on the information collection requirements should direct them to the Office of Information and Regulatory Affairs, Room 3002, New Executive Office Building, Washington, D.C.; Attention: Daniel J. Chenok.

Invitation to Comment

Interested persons are invited to submit comments and recommendations regarding these proposed regulations.

All comments submitted in response to these proposed regulations will be available for public inspection, during and after the comment period, in Room 3431, Mary E. Switzer Building, 330 C Street, S.W., Washington, D.C., between the hours of 8:30 a.m. and 4:30 p.m., Monday through Friday of each week except Federal holidays.

Assessment of Educational Impact

The Secretary particularly requests comments on whether the proposed regulations in this document would require transmission of information that is being gathered by or is available from any other agency or authority of the United States.

List of Subjects

34 CFR Part 350

Administrative practice and procedure, Education, Educational research, Grant program—education, individuals with disabilities.

34 CFR Part 351

Education, Educational research, Grant program—education, Individuals with disabilities, Intergovernmental relations, Vocational rehabilitation.

34 CFR Part 352

Education, Educational research, Grant program—education, Individuals with disabilities, Manpower training programs, Vocational rehabilitation.

34 CFR Part 353

Education, Educational research, Grant program—education, Individuals with disabilities, Intergovernmental relations, Rehabilitation engineering research, Technical assistance, Vocational rehabilitation.

(Catalog of Federal Domestic Assistance Number 84.133, National Institute on Disability and Rehabilitation Research)

Dated: May 20, 1994.

Richard W. Riley,

Secretary of Education.

The Secretary proposes to amend Parts 350, 351, 352, and 353 of Title 34 of the Code of Federal Regulations as follows:

PART 350—DISABILITY AND REHABILITATION RESEARCH: GENERAL PROVISIONS

1. The authority citation for Part 350 continues to read as follows:

Authority: 29 U.S.C. 760–762, unless otherwise noted.

2. Section 350.1 is amended by revising the heading and paragraphs (a) and (b)(3) to read as follows:

§ 350.1 What are the purposes of activities supported under the disability and rehabilitation research program?

(a) The activities funded by the Institute—

(1) Support the conduct of research, demonstration projects, training, and related activities to maximize the full inclusion and integration into society, employment, independent living, family support, and economic and social self-sufficiency of individuals with disabilities of all ages, with particular emphasis on improving the effectiveness of services authorized under the Act;

(2) Provide for a comprehensive and coordinated approach to the support and conduct of research, demonstration projects, training, and related activities, and to ensure that the approach is in accordance with the long-range plan for research developed by the Institute;

(3) Promote the transfer of rehabilitation technology to individuals with disabilities through research and demonstration projects relating to—

(i) The procurement process for the purchase of rehabilitation technology;

(ii) The utilization of rehabilitation technology on a national basis; and

(iii) Specific adaptations or customizations of products to enable individuals with disabilities to live more independently;

(4) Ensure the widespread distribution to rehabilitation professionals, individuals with disabilities, and other interested parties, in usable formats, of practical scientific and technological information that is generated by research, demonstration projects, training and related activities;

(5) Ensure the widespread dissemination to rehabilitation professionals, individuals with disabilities, and other interested parties, in usable formats, of new knowledge about disabilities, including state-of-the-art practices and improvements in the services authorized under the Act;

(6) Identify effective strategies that enhance the opportunities for individuals with disabilities to engage in productive work; and

(7) Increase the opportunities for researchers who are individuals with disabilities or members of minority groups or other traditionally underserved populations.

* * * * *

(b) * * *

(3) Research grants for the establishment and operation of rehabilitation engineering research centers (34 CFR Part 353).

* * * * *

3. Section 350.2 is amended by revising the undesignated introductory text to read as follows:

§ 350.2 Who is eligible for assistance under these programs?

The following agencies and organizations are eligible for grants or contracts as appropriate under these programs, except for programs described in 34 CFR parts 352, 353, 356, and 360:

* * * * *

4. Section 350.3 is amended by revising the last two sentences of paragraph (d)(2) read as follows:

§ 350.3 What regulations apply to these programs?

* * * * *

(d) * * *

(2) * * * When an IRB reviews research that purposefully requires inclusion of children with disabilities or individuals with mental disabilities as research subjects, the IRB must include at least one person primarily concerned with the welfare of these research subjects. If an IRB regularly reviews another vulnerable category of subjects, such as children who do not have disabilities, prisoners, pregnant women, or adults with disabilities, consideration must also be given to the inclusion of one or more individuals who are knowledgeable about the experience in working with these subjects.

5. Section 350.4 is amended by revising the definitions and authority citations in paragraph (b) for *Individual with handicaps, Individual with severe handicaps, Rehabilitation engineering, Research utilization,* and *Supported employment,* and adding new definitions of *Assistive technology device, Assistive technology service, Disability,* and *Personal assistance services,* to read as follows:

§ 350.4 What definitions apply to these programs?

* * * * *

(b) * * *

Assistive technology device means any item, piece of equipment, or product system, whether acquired commercially or off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.

(Authority: Sec. 7(23); 29 U.S.C. 706(23))

* * * * *

Assistive technology service means any service that directly assists an individual with a disability in the selection, acquisition, or use of an assistive technology device. The term includes—

(1) The evaluation of the needs of an individual with a disability, including a functional evaluation of the individual in the individual's customary environment;

(2) Purchasing, leasing, or otherwise providing for the acquisition of assistive technology devices by individuals with disabilities;

(3) Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing of assistive technology devices;

(4) Coordinating and using other therapies, interventions, or services with assistive technology devices, such as those associated with existing education and rehabilitation plans and programs;

(5) Training or technical assistance for an individual with disabilities, or, where appropriate, the family members, guardians, advocates, or authorized representatives of such an individual; and

(6) Training or technical assistance for professionals (including individuals providing education and rehabilitation services), employers, or other individuals who provide services to employ, or are otherwise substantially involved in the major life functions of individuals with disabilities.

(Authority: Sec. 7(24); 29 U.S.C. 706(24))

* * * * *

Disability means a physical or mental impairment that substantially limits one or more major life activities.

(Authority: Sec. 7(26)(B); 29 U.S.C. 706(26)(B))

* * * * *

Individual with a disability means any individual who:

(1) Has a physical or mental impairment that substantially limits one or more of such person's major life activities;

(2) Has a record of such an impairment; or

(3) Is regarded as having such an impairment.

(Authority: Sec. 7(8)(B); 29 U.S.C. 706(8)(B))

* * * * *

Individual with a severe disability means an individual with a disability—

(1)(i) Who has a severe physical or mental impairment that seriously limits one or more functional capacities (such as mobility, communication, self-care, self-direction, interpersonal skills, work tolerance, or work skills) in terms of an employment outcome;

(ii) Whose vocational rehabilitation can be expected to require multiple vocational rehabilitation services over an extended period of time; and

(iii) Who has one or more physical or mental disabilities resulting from amputation, arthritis, autism, blindness, burn injury, cancer, cerebral palsy, cystic fibrosis, deafness, head injury, heart disease, hemiplegia, hemophilia, respiratory or pulmonary dysfunction, mental retardation, mental illness, multiple sclerosis, muscular dystrophy, musculoskeletal disorders, neurological disorders (including stroke and epilepsy), paraplegia, quadriplegia, other spinal cord impairments, sickle cell anemia, specific learning disability, end-stage renal disease, or another disability or combination of disabilities determined on the basis of an assessment of rehabilitation needs to cause comparable substantial functional limitation; or

(2) An individual with a severe mental or physical impairment whose ability to function independently in the family or community or whose ability to obtain, maintain, or advance in employment is substantially limited and for whom the delivery of independent living services will improve the ability to function, continue functioning, or move towards functioning independently in the family or community or to continue in employment, respectively.

(Authority: Sec. 7(15)(C); 29 U.S.C. 706(15)(C))

* * * * *

Personal assistance services means a range of services, provided by one or more persons, designed to assist an individual with a disability to perform daily living activities, on or off the job, that the individual would typically perform if the individual did not have a disability. These services must be designed to increase the individual's control in life and ability to perform everyday activities on or off the job.

(Authority: Sec. 7(11); 29 U.S.C. 706(11))

* * * * *

Rehabilitation engineering means the systematic application of engineering sciences to design, develop, adapt, test, evaluate, apply, and distribute technological solutions to problems confronted by individuals with disabilities in such functional areas as mobility, communications, hearing, vision, cognition and in activities associated with employment, independent living, education, and integration into the community.

(Authority: Sec. 12(c); 29 U.S.C. 711(c))

Rehabilitation technology means the systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of and address the barriers confronted by individuals with disabilities in such areas as education, rehabilitation, employment, transportation, independent living, and recreation, and includes rehabilitation engineering,

assistive technology devices, and assistive technology services.

(Authority: Sec. 7(13); 29 U.S.C. 706(13))

* * * * *

Research utilization means activities seeking to link research findings to practical applications in planning, policymaking, program administration, and service practice in the delivery of services to individuals with disabilities.

(Authority: Sec. 12(c); 29 U.S.C. 711(c))

* * * * *

Supported employment means competitive work in integrated work settings for individuals with the most severe disabilities for whom competitive employment has not traditionally occurred or for whom competitive employment has been interrupted or intermittent as a result of a severe disability, and who, because of the nature and severity of their disability, need intensive supported employment services and extended services after transition in order to perform that work. The term includes transitional employment for persons who are individuals with the most severe disabilities due to mental illness.

(Authority: Sec. 7(18); 29 U.S.C. 706(18))

* * * * *

6. Section 350.20 is revised to read as follows:

§ 350.20 What are the application procedures under these programs?

An applicant for assistance under 34 CFR Parts 351, 352, 353, 354, 355, 357, 358, 359, or 360 whose application is to conduct research, demonstrations, or related activities that will either involve clients of the State vocational rehabilitation agency as research subjects or study vocational rehabilitation services or techniques, shall—

(a) Submit a copy of its application for comment to the State rehabilitation agency or agencies in the primary State or States to be affected by the proposed activities; and

(b) Include in its application copies of transmittal letters to the appropriate State agency or agencies indicating that the necessary copies were transmitted on or before the due date for transmittal of the application to the Department.

(**Authority:** Secs. 204(c) and 306(i); 29 U.S.C. 762(c) and 766(a))

7. A new section 350.21 is added to read as follows:

§ 350.21 What is required of each applicant relative to individuals with disabilities from minority backgrounds?

Each applicant for funding under these programs must demonstrate how it will address, in whole or in part, the needs of individuals with disabilities from minority backgrounds. The approaches an applicant may take to meet this requirement, in whole or in part, may include one or more of the following:

(a) Proposing project objectives concerning minorities with disabilities.

(b) Demonstrating that its application addresses a problem that is of particular significance to individuals with disabilities from minority backgrounds.

(c) Demonstrating that minority individuals will be included in study samples in sufficient numbers to generate information pertinent to minority individuals with disabilities.

(d) Drawing study samples and program participant rosters from populations and areas that include minority populations.

(e) Providing rehabilitation services, clinical care, or training to minority individuals with disabilities.

(f) Disseminating materials to or otherwise increasing the access to disability information among minority populations.

(g) An additional method or methods proposed by the applicant and determined by the Secretary to meet this requirement.

(Authority: Secs. 12(c) and 21(b)(6); 29 U.S.C. 711(c) and 718b(b)(6))

8. Section 350.34 is amended by adding new paragraphs (a)(8), (b)(5), and (c)(14); removing the word "and" at the end of paragraphs (a)(6), (b)(3), and (c)(12); and removing the period and adding, in its place, "; and" at the end of paragraphs (a)(7), (b)(4), and (c)(13) to read as follows:

§ 350.34 What selection criteria does the Secretary use in reviewing applications under parts 351, 354, or 355?

(a) * * *

(8) The project addresses the needs of individuals with disabilities from minority backgrounds in a meaningful way.

(b) * * *

(5) There is likely to be widespread dissemination of the results, in a usable and effective manner, to all appropriate target populations, including individuals with disabilities and their family members.

(c) * * *

(14) The materials to be used in the project and the materials to be disseminated are likely to be in formats that are accessible to the appropriate populations.

* * * * *

9. Section 350.40 is amended by revising paragraph (b)(1)(iii) to read as follows:

§ 350.40 What are the matching requirements?

* * * * *

(b)(1) * * *

(iii) Research projects concerned with end-stage renal disease, telecommunications, rehabilitation of children with disabilities and older individuals with disabilities, (including American Indians), attracting and retaining rehabilitation professionals in rural areas, producing and distributing captioned video cassettes to individuals who are deaf, and innovative methods for providing services for children with disabilities and their parents.

* * * * *

10. A new section 350.41 is added to read as follows:

§ 350.41 What are the requirements of a grantee relative to the Client Assistance Program?

All projects that provide services to individuals with disabilities with funds awarded under these programs must advise those individuals who are applicants for or recipients of services under the Act, or the parents, family members, guardians, advocates, or authorized representatives of the individuals, of the availability and purposes of the Client Assistance Program (CAP) funded under the Act, and must provide information on the means of seeking assistance under the CAP.

(Authority: Sec. 20; 29 U.S.C. 718a)

PART 351—DISABILITY AND REHABILITATION RESEARCH: RESEARCH AND DEMONSTRATION PROJECTS

11. The authority citation for Part 351 continues to read as follows:

Authority: 29 U.S.C. 760–762, unless otherwise noted.

12. Section 351.1 is revised to read as follows:

§ 351.1 What is the research and demonstration projects program?

This program is designed to support—

(a) Discrete research, demonstration, training, and related projects to develop methods, procedures, and technology that maximize the full inclusion and integration into society, independent living, employment, family support, and economic and social self-sufficiency of individuals with disabilities, especially those with the most severe disabilities; and

(b) Discrete research, demonstration, and training projects that specifically address the implementation of Titles I, III, VI, VII, and VIII of the Act, with emphasis on projects to improve the

effectiveness of these programs and to meet the needs described in State Plans submitted to the Rehabilitation Services Administration by State vocational rehabilitation agencies.

(Authority: Sec. 204(a); 29 U.S.C. 761 and 762)

13. Section 351.10 is amended by revising paragraphs (a) and (b) (3) through (7) and (9) and adding a new paragraph (b)(10) to read as follows:

§ 351.10 What types of projects are authorized under this program?

* * * * *

(a)(1) Studies and analyses of medical rehabilitation and restorative techniques, rehabilitation techniques or services, industrial, vocational, social, recreational, psychiatric, psychological, economic, and other factors affecting rehabilitation of individuals with disabilities;

(2) Studies and analyses of special problems of individuals who are homebound and individuals who are institutionalized;

(3) Studies, analyses, and demonstrations of architectural and engineering design—including universal design—adapted to meet the special needs of individuals with disabilities;

(4) Studies, analyses, and other activities related to supported employment; and

(5) Related activities that hold promise of increasing knowledge and improving the rehabilitation of individuals with disabilities, particularly those with the most severe disabilities and those who are members of populations that are unserved or underserved by programs under this Act.

(b) * * *

(3) International research, demonstration, training, and technical assistance projects, and exchange of experts;

(4) Joint projects with other Federal agencies and private industry in areas of joint interest involving rehabilitation;

(5) Research related to the rehabilitation of children or older individuals with disabilities, including older American Indian individuals with disabilities;

(6) Projects to develop and demonstrate innovative methods to attract and retain professionals to serve in rural areas in the rehabilitation of individuals with disabilities, including individuals with severe disabilities;

(7) Research and demonstration projects on the provision of services for children through the age of five with disabilities;

* * * * *

(9) Research concerning the use of existing telecommunication systems to improve services to individuals with disabilities; and

(10) Demonstration projects to provide incentives for the development, manufacture, and marketing of orphan technological devices to enable individuals with disabilities to achieve independence and access to gainful employment.

(Authority: Secs. 202(b)(8), 204(a), and 204(b)(4)–(10), (12), (15), and (16); 29 U.S.C. 761a(b)(8), 762(a), and 762(b)(4)–(10), (12), (15), and (16))

PART 352—DISABILITY AND REHABILITATION RESEARCH: REHABILITATION RESEARCH AND TRAINING CENTERS

14. The authority citation for Part 352 continues to read as follows:

Authority: 29 U.S.C. 760–762, unless otherwise noted.

15. Section 352.1 is revised to read as follows:

§ 352.1 What is the Rehabilitation Research and Training Centers program?

This program supports Rehabilitation Research and Training Centers for the purpose of—

(a) Conducting coordinated and advanced programs of research on disability and rehabilitation that will produce new knowledge that will improve rehabilitation methods and service delivery systems, alleviate or stabilize disabling conditions, and promote maximum social and economic independence for individuals with disabilities;

(b) Providing training to service providers at the preservice, inservice, undergraduate, and graduate levels, to improve the quality and effectiveness of rehabilitation services;

(c) Providing advanced research training to individuals, including individuals with disabilities and those from minority backgrounds, engaged in research on disability and rehabilitation; and

(d) Serving as national and regional technical assistance resources, and providing training for, service providers, individuals with disabilities and their families and representatives, and rehabilitation researchers.

(Authority: Sec. 204(b)(2); 29 U.S.C. 762(b)(2))

16. Section 352.2 is revised to read as follows:

§ 352.2 Who is eligible for assistance under this program?

Under this program, awards may be made to public and private organizations, including institutions of higher education and Indian tribes or tribal organizations, that—

(a) Are of sufficient size, scope and quality to carry out effectively the activities in an efficient manner consistent with appropriate State and Federal law;

(b) Demonstrate the ability to carry out the training activities, either directly or through another entity that can provide that training; and

(c) Demonstrate that the Center will be operated in collaboration with an institution of higher education or provider of rehabilitation or other appropriate services.

(Authority: Secs. 204(a) and 204(b)(2)(A)(i) and (K); 29 U.S.C. 762(a) and 762(b)(2)(A)(i) and (K))

17. Section 352.10 is revised to read as follows:

§ 352.10 What activities are authorized under this program?

(a) Rehabilitation Research and Training Centers shall conduct research activities, which must be accessible to and usable by individuals with disabilities, that may include the following:

(1) Basic or applied medical rehabilitation research.

(2) Research regarding the psychological and social aspects of rehabilitation.

(3) Research regarding disability policy.

(4) Research related to vocational rehabilitation.

(5) Research that promotes the social, emotional, functional, and educational growth of children who have disabilities.

(6) Research to develop and evaluate interventions, policies, and services that support families of children and adults who have disabilities.

(7) Research that will support the improvement of services and policies to foster the productivity, independence, and social integration of individuals with disabilities of all types, to live in their communities.

(b) Rehabilitation Research and Training Centers shall conduct training activities, which must be accessible to and usable by individuals with disabilities, that may include the following:

(1) Training of students preparing to be rehabilitation personnel.

(2) Training at the preservice, inservice, and graduate levels to assist individuals to provide rehabilitation services more effectively.

(3) Training at graduate, preservice, and inservice levels for rehabilitation research personnel.

(4) In-service training for individuals with disabilities and their family members, guardians, advocates, or authorized representatives.

(5) Faculty support for teaching rehabilitation-related courses of study for credit and other courses offered by the Center.

(c) Rehabilitation Research and Training Centers shall disseminate information and provide technical assistance, which must be accessible to and usable by individuals with disabilities, through conferences, workshops, public education programs, inservice training programs, publications, and similar activities, to—

(1) Providers of rehabilitation and other relevant services to individuals with disabilities;

(2) Individuals with disabilities;

(3) Family members of individuals with disabilities;

(4) Other authorized representatives, advocates, and organizations that provide information and support to individuals with disabilities and their families; and

(5) Administrators, policymakers, and representatives of public and private organizations whose activities affect the productivity, independence, and community integration of individuals with disabilities.

(d) Rehabilitation Research and Training Centers may use part of their funds to provide services connected with their research and training activities to individuals with disabilities.

(e) Rehabilitation Research and Training Centers and encouraged to develop practical applications for the findings of their research.

(Authority: Sec. 204(b)(2)(A)(ii),(B)–(D), and (F)–(H); 29 U.S.C. 762(b)(2)(A)(ii), (B)–(D), and (F)–(H))

18. Section 352.31 is amended by adding paragraph (a)(4), revising paragraph (c)(2)(iii) and adding (c)(2)(vi) and (vii) as follows:

§ 352.31 What selection criteria are used under this program?

* * * * *

(a) * * *

(4) The applicant demonstrates how the proposed activities of the Center will address, in whole or in part, the rehabilitation needs of individuals with disabilities from minority backgrounds and underserved populations.

* * * * *

(c) * * *

(2) * * *

(iii) Training packages that make research results available to service providers, researchers, educators, individuals with disabilities, parents, and others;

* * * * *

(vi) Widespread dissemination of findings and other appropriate materials to individuals with disabilities and their family members, advocates, and representatives, as well as to public and private agencies, rehabilitation practitioners, service providers, policymakers, and researchers; and

(vii) Dissemination of research findings and other materials in appropriate formats and accessible media for use by individuals with various disabilities.

* * * * *

(Authority: Secs. 21(b)(6), 202(e), and 204(b)(2); 29 U.S.C. 718 b(6), 761a(e), 761(a)(e), and 762(b)(2))

19. Section 352.33 is revised to read as follows:

§ 352.33 What is the project period of a Rehabilitation Research and Training Center?

Awards are made under this program for a period of five years except that awards may be made for a lesser period if—

(a) The award is made to a new recipient; or

(b) The award supports a new research area or an innovative approach to a research area.

(Authority: Sec. 204(b)(2)(L); 29 U.S.C. 762(b)(2)(L))

20. A new Section 352.34 is added to read as follows:

§ 352.34 What other factors does the Secretary consider in making an award under this program?

In making an award under this program, the Secretary takes into consideration the location of any proposed Center and the appropriate geographic and regional allocation of all Centers.

(Authority: Sec. 204(b)(2)(J); 29 U.S.C. 762(b)(2)(J))

21. A new section 352.41 is added to read as follows:

§ 352.41 What is the advisory committee requirement for a grantee under this program?

A Rehabilitation Research and Training Center shall have an advisory committee of which the majority of the members are individuals with disabilities, or the parents, family members, guardians, advocates, or authorized representatives of individuals with disabilities.

(Authority: Sec. 204(b)(3)(D)(ii); 29 U.S.C. 762(a))

22. The title of Part 353 is revised to read as follows:

PART 353—DISABILITY AND REHABILITATION RESEARCH: REHABILITATION ENGINEERING RESEARCH CENTERS

23. The authority citation for Part 353 is revised to read as follows:

Authority: 29 U.S.C. 762(b)(3), unless otherwise noted.

24. Section 353.1 is revised to read as follows:

§ 353.1 What is the Rehabilitation Engineering Research Centers program?

Rehabilitation Engineering Research Centers conduct research, demonstration, and training activities regarding rehabilitation technology—including rehabilitation engineering, assistive technology devices, and assistive technology services, in order to enhance the opportunities to better meet the needs of, and address the barriers confronted by, individuals with disabilities in all aspects of their lives.

(Authority: Sec. 204(b)(3)(A); 29 U.S.C. 762(b)(3)(A))

25. Section 353.2 is revised to read as follows:

§ 353.2 Who is eligible for assistance under this program?

A public or private entity, including an Indian tribe or tribal organization, is eligible to receive an award under this program if the entity demonstrates that the Center will be operated in collaboration with an institution of higher education or a nonprofit organization.

(Authority: Sec. 204(b)(3)(A); 29 U.S.C. 762(b)(3)(A))

26. Section 353.10 is revised to read as follows:

§ 353.10 What types of activities are authorized under this program?

(a) Rehabilitation Engineering Research Centers shall carry out research and demonstration activities through—

(1) Developing and disseminating innovative methods of applying advanced technology, scientific achievement, and psychological and social knowledge to solve rehabilitation problems and remove environmental barriers through—

(i) Planning and conducting research, including cooperative research with public or private agencies and organizations, designed to produce new scientific knowledge and new or improved methods, equipment, or devices; and

(ii) Studying and evaluating the effectiveness and benefits of new or emerging technologies, products, or environments.

(2) Demonstrating and disseminating—

(i) Innovative models for the delivery to rural and urban areas of cost-effective rehabilitation technology services that will promote the use of assistive technology services; and

(ii) Other scientific research to assist in meeting the employment and independent living needs of individuals with severe disabilities; or

(3) Conducting research and demonstration activities to facilitate service change in service delivery systems by demonstrating, evaluating, documenting, and disseminating—

(i) Consumer-responsive and individual-and-family-centered innovative models for the delivery to both rural and urban areas of innovative, cost-effective rehabilitation technology services that promote utilization of rehabilitation devices; and

(ii) Other scientific research to assist in meeting the employment and independent living needs of, and addressing the barriers confronted by individuals with disabilities, including individuals with severe disabilities.

(b) To the extent consistent with the nature and type of research or demonstration activities described in paragraph (a), the Rehabilitation Engineering Research Centers shall carry out research, training, and information dissemination activities by—

(1) Cooperating with programs established under the Technology-Related Assistance for Individuals with Disabilities Act of 1988 (Pub. L. 100–407), and other regional and local programs, to provide information on the uses and resources for assistive technology to individuals with disabilities and their parents, family members, guardians, advocates, or authorized representatives;

(2) Providing training to individuals, including individuals with disabilities, to enable them to become rehabilitation technology researchers and practitioners of rehabilitation technology; and

(c) Responding, through research or demonstration activities, to the needs of individuals with all types of disabilities who may benefit from the application of technology within the area of focus of the Center.

(Authority: Secs. 204(b)(3); 29 U.S.C. 762(b)(3))

27. Section 353.31 is amended by removing the word "and" at the end of paragraph (a)(2), removing the period at the end of paragraph (a)(3) and adding, in its place "; and", and adding a new paragraph (a)(4); removing the word "and" at the end of paragraph (c)(2)(iv), removing the period at the end of paragraph (c)(3) and adding, in its place "; and", and adding a new paragraph (c)(4); removing the word "and" at the end of paragraph (d)(7), removing the period at the end of paragraph (d)(8) and adding, in its place "; and", and adding a new paragraph (d)(9); and revising the authority citation to read as follows:

§ 353.31 What selection criteria are used under this program?

(a) * * *

(4) The applicant addresses the needs of individuals with disabilities from minority backgrounds in a meaningful way.

* * * * * *

(c) * * *

(4) The applicant includes a plan for effective cooperation with appropriate State, local, and regional organizations and projects to provide information to individuals with disabilities and their family members, advocates, and representatives, about the potential uses and benefits, and resources for obtaining, rehabilitation technology.

(d) * * *

(9) The plan for operating the Center includes an advisory committee of which the majority of the members are individuals with disabilities who are users of rehabilitation technology or the family members or authorized representatives of such individuals.

(Authority: Secs. 21(b)(6), 202(e), 204(b)(3)(C) and (D)(ii); 29 U.S.C. 718(b)(6) and 762(b)(3)(C) and (D)(ii))

28. A new Section 353.33 is added to read as follows:

§ 353.33 What is the project period of a Rehabilitation Engineering Research Center?

Awards are made under this program for a period of five years except that awards may be made for a lesser period if—

(a) The award is made to a new recipient; or

(b) The award supports a new research area or an innovative approach to a research area.

(Authority: Sec. 204(b)(3)(E); 29 U.S.C. 762(b)(3)(E))

29. A new section 353.40 is added to read as follows:

§ 353.40 What is the advisory committee requirement for a grantee under this program?

(a) A Rehabilitation Engineering Research Center shall have an advisory committee the majority of the members of which are individuals with disabilities who are users of rehabilitation technology, or the parents, family members, guardians, advocates, or authorized representatives of users of assistive technology.

(b) A Rehabilitation Engineering Research Center shall cooperate with State rehabilitation agencies, and other local, State, regional, and national programs and organizations developing or delivering rehabilitation technology, including State programs funded under the Technology-Related Assistance for Individuals with Disabilities Act of 1988.

(c) A Rehabilitation Engineering Research Center funded under this program shall prepare and submit to the Secretary, either as part of an application for continuation of a grant or as part of a final report, a report that documents the short- and long-term impact of the center's program and program outcomes on the lives of individuals with disabilities, and such other information as the Secretary may request.

(Authority: Secs. 204(b)(3)(D)(ii) and (G); 29 U.S.C. 762(b)(3)(D)(ii) and (G))

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Wednesday
August 10, 1994

Part VI

Department of Education

34 CFR Part 682

Federal Family Education Loan Program; Proposed Rule

DEPARTMENT OF EDUCATION

34 CFR Part 682

RIN 1840–AC06

Federal Family Education Loan Program

AGENCY: Department of Education.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Secretary proposes to amend the Federal Family Education Loan (FFEL) Program regulations. These amendments are needed to implement changes in the Higher Education Act of 1965, as amended (HEA), giving the Secretary additional powers to assure the safety of reserve funds and assets maintained by guaranty agencies insuring educational loans under the FFEL Program pursuant to agreements with the Secretary. The amendments would further define "reserve funds and assets" and establish the substantive standard for the return of "unnecessary" reserves. They would also provide procedural due process for challenges to these orders and for orders requiring that reserve funds and assets outside of the guaranty agency's control be returned to it or to the Secretary.

DATES: Comments must be received on or before October 11, 1994.

ADDRESSES: All comments concerning these proposed regulations should be addressed to Mr. Donald M. Feuerstein, U.S. Department of Education, 400 Maryland Avenue SW., room 4624, Regional Office Building 3, Washington, DC 20202–5343.

A copy of any comments that concern information collection requirements should also be sent to the Office of Management and Budget at the address listed in the Paperwork Reduction Act section of this preamble.

FOR FURTHER INFORMATION CONTACT: Mr. Donald M. Feuerstein, telephone: (202) 401–2280. Individuals who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 1–800–877–8339 between 8 a.m. and 8 p.m., Eastern time, Monday through Friday.

SUPPLEMENTARY INFORMATION:

Background

The FFEL Program regulations (34 CFR Part 682) govern the Federal Stafford Loan Program, the Federal Supplemental Loans for Students Program, the Federal PLUS Program, and the Federal Consolidation Loan Program (formerly the Guaranteed Student Loan programs).

The Omnibus Budget Reconciliation Act of 1993 (Pub. L. 103–66) (OBRA), enacted August 10, 1993, added section 422(g)(1) of the HEA. The conference report on OBRA states, "* * * the conferees wish to emphasize that this language is not intended to diminish the longstanding and judicially-supported view that a guaranty agency's assets are dedicated to the loan programs and may not be used for unauthorized purposes. It is the conferees' further intention that all references to guaranty agency reserves contained in amendments to section 422 refer only to the 'federal portion' of such reserves." In the course of the negotiated rulemaking the industry negotiators stated that "* * * Section 422 defines the federal portion of reserves as federal advances and earnings made on those advances, and states that non-Federal reserves are not subject to recall, repayment or recovery by the Secretary, except in the case of the termination of the guarantor's agreement with the Secretary in accordance with Sections 428(c)(9) (E) and (F)." To protect the Federal fiscal interest, OBRA authorized the Secretary to direct (1) the return of "unnecessary" reserves from guaranty agencies (section 422(g)(1)(A)), (2) the return to the guaranty agency or to the Secretary of guaranty agency reserves and assets held by, or under the control of, any other party (section 422(g)(1)(B)), and (3) guaranty agencies to cease and desist from "misapplication, misuse, or improper expenditure" of reserve funds and assets (section 422(g)(1)(C)).

Negotiated Rulemaking

OBRA expressly provides that determinations under section 422(g)(1)(A) and (B) be based on standards set forth in regulations subject to negotiated rulemaking. The negotiated regulations are also to contain procedures for administrative due process. Although no such requirement was made for determinations under section 422(g)(1)(C), the conference report on OBRA expressed the conferees' intent that the issue of "recovery" in the case of misuse, misapplication, or improper expenditure be "addressed" during the negotiated rulemaking over the first two subsections.

Monthly negotiated rulemaking sessions were held from January through June 1994 in and around Washington, DC.

Proposed Regulatory Changes

The Secretary submitted drafts of proposed regulatory language to implement section 422(g)(1)(A) and (B) for discussion at the negotiated rulemaking sessions. Although not required by OBRA to be negotiated, a draft regulation to implement section 422(g)(1)(C) was also submitted by the Secretary at the request of industry negotiators but was withdrawn when substantial opposition to its approach was expressed. Nevertheless, the dialogue with the other negotiators was quite helpful, and the Secretary intends to reconsider the approach and propose regulatory language on this subject in the regular course at a later time after consultation with interested parties. Consensus was reached on all aspects of the other rules and the accompanying preamble. In reaching consensus, the negotiators agreed that all of the rules proposed in this notice properly come within the Secretary's statutory powers, but they reserve the right to challenge the validity of the underlying statutes or subsequent interpretations of the rules by the Secretary.

The following summarizes the major changes in this notice of proposed rulemaking:

Section 682.410 Fiscal, administrative and enforcement requirements

Paragraph (a) of this section currently establishes fiscal requirements for guaranty agencies by (1) defining reserve funds in terms of sources and permitted uses, (2) regulating the investment of those funds, (3) providing for reimbursement of reserve funds in the event that revenue is derived from assets developed or purchased with those funds or those assets are converted to uses unrelated to the FFEL Program and (4) establishing minimum reserve fund levels. At the outset of the negotiated rulemaking proceeding industry negotiators requested a better definition of the reserve fund, and many of the proposed amendments to this section are intended to be responsive to that request.

Paragraph (a)(1) specifies the receipts that must be credited to the reserve fund. The Secretary proposes to amend that paragraph to clarify certain matters. First, paragraph (a)(1)(ii) currently refers only to funds "appropriated by" a State for the loan guaranty programs, but funds received from a State in any other manner for that purpose are already covered by paragraph (a)(1)(ix). Accordingly, the Secretary proposes to substitute the broader phrase "received from" in paragraph (a)(1)(ii) to obviate any possibility of confusion. Second, paragraph (a)(1)(vi), which now refers to administrative cost allowance payments, is proposed to be amended to add transitional support payments under section 458(a) of the HEA, which Congress created in OBRA when it eliminated the administrative cost allowance. Third, although paragraph (a)(1)(vii) currently includes funds

collected by the guaranty agency without any qualification, this paragraph has always been understood to apply only to collections on FFEL loans on which a claim has been paid. That qualification is now proposed to be made explicit. Finally, the Secretary proposes to rearrange the wording of paragraph (a)(1)(ix) for stylistic reasons only.

Paragraphs (a) (2) and (3) currently specify the permitted uses of the reserve fund. Since the former statutory provisions that segregated certain reserve fund receipts for restricted uses were later repealed, it is no longer necessary to have two different sets of permitted uses. To simplify the regulation the Secretary proposes to combine the two paragraphs by redesignating current paragraph (a)(3)(i) as paragraph (a)(2)(x) and removing the balance of the current paragraph (a)(3). Although it is already well understood that neither the current paragraph (a)(3) nor the current paragraph (a)(2)(ii) was meant to permit excessive or otherwise unreasonable expenditures, the Secretary plans to make that understanding explicit in the subsequent rule proposal on misuse, misapplication, and improper expenditures. The Secretary now also proposes to add three new paragraphs to paragraph (a)(2). Paragraph (a)(2)(viii) would make explicit the currently-understood authority for guaranty agencies to use reserve funds to make borrower refunds arising from claims and defenses. Paragraph (a)(2)(ix) would authorize the reversal of prior credits to the reserve funds under certain conditions, including contemporaneous documentation that the amounts were received as only temporary infusions of capital. Finally, the guaranty agency representatives questioned the legality and fairness of any retroactive application of the other proposed amendments to this section and requested that paragraph (a)(2)(xi) be added. Under this provision prior actions would remain lawful if a guaranty agency had acted in good faith, as measured by the laws, rules, standards, customs, and practices prevailing at the times of the actions. Although the Secretary's representatives defended the general power of the Secretary to amend retroactively regulations governing guaranty agencies, they agreed to the requested paragraph in the interest of fairness.

The Secretary recognizes that the customary problems involved in allocating shared expenses among different activities conducted within a single entity or among related entities and the particular problems created by the limited life expectancies of some guaranty agencies as a result of OBRA may pose difficulties for the agencies in determining the propriety of payments from the reserve fund under paragraph (a)(2). In the subsequent rulemaking proceeding on misuse, misallocation, and improper expenditures the Secretary plans to establish procedures for the formal review of cost allocation programs and major capital expenditures by guaranty agencies. In the meantime, the staff of the Department of Education stands ready to assist program participants by providing informal advice in these areas.

The Secretary proposes to add a new paragraph (a)(3) to clarify the appropriate accounting method for reserve fund reporting. Generally-accepted accounting principles provide for the deferral of certain items of income and the accrual of certain items of expenses on financial statements to match related income and expenses, and many guaranty agencies have established these accounts. On the other hand, part E of ED Form 1130, the annual report for guaranty agencies, requires that sources and uses of program funds be reported to the Secretary strictly on a cash basis. See ED Form 1130 Instructions (May 1993 ed.), pp. 79–80. To avoid any confusion, the new paragraph (a)(3) would expressly provide that deferrals and accruals for reserve fund reporting be made only with the prior approval of the Secretary.

The Secretary also proposes to add a new paragraph (a)(4) to clarify the obligation of guaranty agencies to reflect accurately in their accounting records the computation of reserve fund balances in accordance with this section and to provide a mechanism for correcting those records. Paragraphs (a)(4)(i) and (a)(4)(iii) would restate the general obligation to maintain correct accounting records and to correct them when necessary. Paragraphs (a)(4)(ii) and (a)(4)(iv) would establish specific mechanisms for the correction of erroneous credits to the reserve fund and for general accounting record reconstructions. In both cases, the Secretary would not allow a guaranty agency to change its accounting records if other parties, such as lenders or students who had relied on the guaranty agency's stated financial condition, would be unfairly prejudiced. In the case of general accounting record reconstructions, the Secretary intends to grant the required approval only on the basis of an audit plan submitted before any work on the reconstruction actually commences.

The current paragraph (a)(4) limits the investment of reserve funds to low-risk securities and restates the fiduciary duty of guaranty agencies in making those investments. This paragraph would be redesignated as paragraph (a)(5) in the proposed amendment, and the wording of the paragraph would be rearranged for stylistic purposes. The Secretary understands that investment risk can arise from the maturity of securities investments as well as from the identity of their issuers and will deal with this subject in the subsequent rule proposal on misuse, misapplication and improper expenditures.

The current paragraph (a)(5) requires proportionate reimbursement to the reserve fund when a guaranty agency derives revenue from an asset developed or purchased with the reserve fund or converts the asset to a use not related to the FFEL Program. This paragraph is based on the fundamental principle that reserve funds are to be used solely for the FFEL Program and retain that character when incorporated into other assets. It provides a remedy for any deviation from this principle in addition to disallowance of any payment that was not permitted by paragraph (a)(2) in the first place. The Secretary does recognize, however, that there may be economies in having assets shared by program and nonprogram activities. For example, purchasing a single computer with sufficient capacity for both the FFEL Program and an unrelated agency activity will ordinarily cost less than the total of separate computers for each, thereby creating a saving to be shared between the two activities. Such legitimate joint utilization of assets should not be stifled by regulation.

The proper scope of this paragraph was discussed in the negotiated rulemaking proceeding at great length. The basic policy issue was whether the additional remedy provided by the paragraph should be limited to situations in which assets are acquired by the guaranty agency with reserve funds in a technical purchase-and-sale transaction or should apply to all asset-related transactions in which reserve funds are used. The basic legal issue was whether the use of the word "purchase" in section 422(g)(1) of the HEA precludes the latter result. The Secretary's position is that, although "purchase" and "develop" are not synonymous in their everyday usage, the word "develop" was added to this paragraph in a 1992 rulemaking proceeding (57 FR 60355) merely to emphasize the broad meaning traditionally given to the word "purchase" in the law. *See, for example,* 26 U.S.C. § 338(h)(3); *Dasho* v.

Susquehanna Corp., 380 F.2d 262 (7th Cir. 1967); U.C.C. § 1–201(32). The industry negotiators argued, on the other hand, that "purchase" is a different term from "develop," and the Secretary was not authorized to expand the statutory scope by rulemaking. In addition to disagreeing with this narrow reading of the statute, the Secretary's representatives expressed concern over attempting to accommodate the other negotiators' comments on its original rulemaking proposals only to have them undermine any consensus by later claiming that the Secretary was acting outside the scope of statutory authority in adopting the very regulation to which they had consented. After extensive discussion of these issues, all the negotiators agreed to substitute a more discriminating set of remedies for the current monolithic approach of the paragraph, to put aside their differences over the proper scope of the paragraph by using only the word "develop" in the rule, and not to question the Secretary's authority to promulgate a rule in this form.

In current paragraph (a)(5), redesignated as paragraph (a)(6), the proposed revision would provide different consequences, depending upon the relationship between the initial cost allocation and the use for nonprogram purposes. If the use for nonprogram purposes was not substantial, no remedy at all would be necessary. If the use was substantial but the initial cost allocation was correct, the consequences of revenue receipts or subsequent conversion to nonprogram purposes would be governed by the reserve fund's recorded ownership interest in the asset. If the use was substantial and the agency had attempted in good faith to allocate the cost between the program and nonprogram purposes but had done so erroneously, the agency would only be required to correct the allocation. If there was no such good faith allocation attempt at the outset, however, the Secretary would be given a choice of remedies: The Secretary could either require the agency to correct the allocation or require it to correct the recorded ownership of the asset to reflect the fair proportionate interests of the Department. This proposed election of remedies for the Secretary is based on the traditional legal principle that a beneficiary has the choice of either disavowing or ratifying a misuse of assets by a fiduciary. An analysis of fair proportionate interests would utilize the criteria customarily used in the financial world with regard to the development of new businesses, would include both monetary and other contributions to the total development cost, and would consider both the magnitude and the relative risk of all of these contributions.

The Secretary proposes to add a new paragraph (a)(7) to state the principle that any claim by a guaranty agency to recover funds and assets for the reserve fund from a third party is also Federal property.

The guaranty agencies requested the addition of proposed paragraph (a)(8), which would apply one of the traditional fiduciary standards for non-arm's length transactions to guaranty agencies' use of reserve funds and assets.

Finally, the guaranty agency negotiators also requested the addition of the first sentence of paragraph (a)(9) to clarify the applicability of the definition of reserve funds and assets in this section throughout sections 422 and 428 of the HEA. The departmental negotiators, in response, added the second sentence to reference the Secretary's authority under section 428(c)(9)(F)(vi) of the HEA to use all funds and assets of the guaranty agency under the circumstances specified in that section.

Section 682.417 Determination of reserve funds or assets to be returned

The Secretary proposes to add a new section to establish the substantive standard for orders to guaranty agencies to return unnecessary reserves. The section would also establish a process by which a guaranty agency may challenge an order that it return reserves or an order that it require the return to itself or to the Secretary of reserve funds or assets that are held by, or under the control of, another party. Since the Secretary is not aware of any circumstances under which all of those funds and assets would not be required for the orderly termination of the agency's operations or the orderly liquidation of its assets, no further substantive standard has been proposed for orders for the return of property not in the hands of the guaranty agencies.

Proposed paragraph (a) would simply restate the statutory provisions.

In paragraph (b) the Secretary proposes the substantive standard for "unnecessary" reserves. Under this paragraph the Secretary would not initiate a proceeding for the recovery of unnecessary reserves unless the guaranty agency's reserve fund ratio exceeded a specified level for each of the two preceding Federal fiscal years. In exercising discretion whether to initiate such a proceeding during the first two years that this rule is effective, the Secretary will consider that the effects of OBRA on guaranty agencies were not reflected at all in the 1993 fiscal year and will probably not have been fully reflected in the 1994 fiscal year, either. If the Secretary does initiate a proceeding, projections of the agency's future financial condition would be used as the basis for the decision. As soon as possible, the Secretary intends to propose a system of uniform financial projections for guaranty agencies that could not only be used in these proceedings, but would also give the Secretary better general information on the current and future financial health of the guaranty agency industry. In the meantime, the Secretary would be able to require a guaranty agency to submit special projections for the proceeding. If the Secretary determined to recover reserves from an agency, the agency would be entitled to retain sufficient reserves at least to satisfy the "trigger" level specified in the regulation and to maintain a sufficient cushion over the statutorily-mandated reserve requirements to perform its responsibilities as a guaranty agency over a specified future period. The Secretary proposes to use a higher standard than the statutory minimum in order to enable agencies to continue to guarantee new loans and perform their other obligations as guaranty agencies, not simply to satisfy their existing guarantees and service out their existing portfolios.

Proposed paragraph (c) would set forth the contents and procedural requirements for the notice by which the Secretary or an authorized Departmental official would initiate a proceeding under this section. The proposed notice is designed to provide the agency with the information that it needs to respond to the officer's initial determination. The notice would also include a description of any actions that the guaranty agency would be required to take to assure the safety of the reserve funds or assets that are the subject of the proceeding while the proceeding was pending.

In paragraph (d) the Secretary proposes to provide the procedural and substantive requirements for the appeal of an initial determination under paragraph (c). The appeal would be decided by a different Departmental official who was not a subordinate of the one who made the initial determination. The guaranty agency would have the burden of production and persuasion in such an appeal. It would be entitled to an oral argument to the deciding official promptly after submitting all material that is required for the appeal but not to a formal hearing. The record would be closed to

evidence before this oral argument unless the deciding official determined otherwise.

Under section 428(c)(9)(J) of the HEA, the Secretary is required to protect the confidentiality of financial information collected by the Secretary under that section. In light of this requirement, only the guaranty agency and the Department would be considered parties to a proceeding under this section with any formal rights of participation. The Department, however, always appreciates receiving information from all persons having relevant information about matters within its jurisdiction, and it particularly solicits input from students and schools in these proceedings. Accordingly, in paragraph (e) the Secretary proposes to provide an opportunity for public input by publishing a notice of the initial determination of funds or assets to be returned in the **Federal Register**. In the interest of fairness, the guaranty agency would be given a reasonable opportunity to respond to any public input if the deciding official considered the information adverse to the agency.

In paragraph (f) the Secretary proposes to specify the procedures for, and content of, the decision on appeal. Judicial review could not be sought until this decision was issued.

Paragraph (g) would contain the substantive and procedural requirements for compliance with any order of the Secretary issued under this section.

Executive Order 12866

1. *Assessment of costs and benefits*

These proposed regulations have been reviewed in accordance with Executive Order 12866. Under the terms of the order the Secretary has assessed the potential costs and benefits of this proposed regulatory action.

The potential costs associated with the proposed regulations are those resulting from statutory requirements and those determined by the Secretary to be necessary for administering the Title IV, HEA programs effectively and efficiently. Burdens specifically associated with information collection requirements, if any, are explained elsewhere in this preamble under the heading of Paperwork Reduction Act of 1980.

In assessing the potential costs and benefits—both quantitative and qualitative—of these proposed regulations, the Secretary has determined that the benefits of the proposed regulations justify the costs.

The Secretary has also determined that this regulatory action does not unduly interfere with State, local, and tribal governments in the exercise of their governmental functions.

To assist the Department in complying with the specific requirements of Executive Order 12866, the Secretary invites comment on whether there may be further opportunities to reduce any potential costs or increase potential benefits resulting from these proposed regulations without impeding the effective and efficient administration of the Title IV, HEA programs.

2. *Clarity of the regulations*

Executive order 12866 requires each agency to write regulations that are easy to understand.

The Secretary invites comments on how to make these regulations easier to understand, including answers to questions such as the following: (1) Are the requirements in the regulations clearly stated? (2) Do the regulations contain technical terms or other wording that interferes with their clarity? (3) Does the format of the regulations (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce their clarity? Would the regulations be easier to understand if they were divided into more (but shorter) sections? (A "section" is preceded by the symbol "§" and a numbered heading; for example, § 682.410 Fiscal, administrative, and enforcement requirements.) (4) Is the description of the proposed regulations in the "Supplementary Information" section of this preamble helpful in the understanding of the proposed regulations? How could this description be more helpful in making the proposed regulations easier to understand? (5) What else could the Department do to make the regulations easier to understand?

A copy of any comments that concern whether these proposed regulations are easy to understand should also be sent to Stanley Cohen, Regulations Quality Officer, U.S. Department of Education, 400 Maryland Avenue, SW., (Room 5125 FOB–6), Washington, DC 20202–2241.

Regulatory Flexibility Act Certification

The Secretary certifies that these proposed regulations would not have a significant economic impact on a substantial number of small entities. The small entities that would be affected by these regulations are small organizations that contract with guaranty agencies to administer aspects of the agencies' participation in the FFEL programs. However, the regulations would not have a significant impact on these small entities, because the regulations would not impose excessive regulatory burdens or require unnecessary Federal supervision. The regulations would impose minimal requirements to ensure the proper expenditure of program funds.

Paperwork Reduction Act of 1980

Sections 682.410 and 682.417 contain information collection requirements. As required by the Paperwork Reduction Act of 1980, the Secretary will submit a copy of these sections to the Office of Management and Budget (OMB) for its review.

Guaranty agencies receive payments from the Secretary and others for exclusive use in the FFEL programs, and the accumulated surplus of those payments over permissible expenditures are Federal property, to be returned to the Secretary upon the agency's termination or under certain other circumstances. The Secretary needs and uses the information to enable him to determine whether the guaranty agencies comply with the requirements for safeguarding this Federal property and the limitations on its use.

Annual public reporting and recordkeeping burden contained in the collection of information proposed in these regulations is estimated to be 90 hours, including the time for searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection information, and submitting materials.

Organizations and individuals desiring to submit comments on the information collection requirements should submit them to the Office of Information and Regulatory Affairs, OMB, room 10235, New Executive Office Building, Washington, DC 20503; Attention: Daniel J. Chenok.

Invitation to Comment

Interested persons are invited to submit comments and recommendations regarding these proposed regulations. All comments submitted in response to these proposed regulations will be available for public inspection, during and after the comment period, in room 4624, Regional Office Building 3, 7th and D Streets, SW., Washington, DC, between the hours of 8:30 a.m. and 4 p.m., Monday through Friday of each week except federal holidays.

Assessment of Educational Impact

The Secretary particularly requests comments on whether the proposed regulations in this document would require transmission of information that is being gathered by or is available from any other agency or authority of the United States.

List of Subjects in 34 CFR Part 682

Administrative practice and procedure, Colleges and universities, Education, Loan programs-education, Reporting and recordkeeping requirements, Student aid, Vocational education.

(Catalog of Federal Domestic Assistance Number 84.032, Federal Family Education Loan Program)

Dated: July 29, 1994.

Richard W. Riley,

Secretary of Education.

The Secretary proposes to amend part 682 of title 34 of the Code of Federal Regulations as follows:

PART 682—FEDERAL FAMILY EDUCATION LOAN (FFEL) PROGRAMS

1. The authority citation for part 682 continues to read as follows:

Authority: 20 U.S.C. 1071 to 1087–2, unless otherwise noted.

2. Section 682.410 is amended by redesignating paragraphs (a)(6) through (8) as (a)(10) through (12), respectively; by revising paragraphs (a)(1) through (5); and by adding new paragraphs (a)(6) through (8) and (a)(9) to read as follows:

§ 682.410 Fiscal, administrative, and enforcement requirements.

(a) *Fiscal requirements.* (1) *Reserve fund assets.* A guaranty agency shall establish and maintain a reserve fund to be used solely for its activities as a guaranty agency under the FFEL Program ("guaranty activities"). The guaranty agency shall credit to the reserve fund—

(i) The total amount of insurance premiums collected;

(ii) Funds received from a State for the agency's guaranty activities, including matching funds under section 422(a) of the Act;

(iii) Federal advances obtained under sections 422(a) and (c) of the Act;

(iv) Federal payments for default, bankruptcy, death, disability, closed school, and false certification claims;

(v) Supplemental preclaims assistance payments;

(vi) Administrative cost allowance payments received under § 682.407 and transitional support payments received under section 458(a) of the Act;

(vii) Funds collected by the guaranty agency on FFEL Program loans on which a claim has been paid;

(viii) Investment earnings on the reserve fund; and

(ix) Other funds received by the guaranty agency from any source for the agency's guaranty activities.

(2) *Uses of reserve fund assets.* A guaranty agency may use the assets of the reserve fund established under paragraph (a)(1) of this section to pay only—

(i) Insurance claims;

(ii) Operating costs for the agency's guaranty activities, including payments necessary in collecting loans, providing preclaims assistance, monitoring enrollment and repayment status, and carrying out any other guaranty activities;

(iii) Lenders for their participation in a loan referral service under section 428(e) of the Act;

(iv) The Secretary's equitable share of collections;

(v) Federal advances and other funds owed to the Secretary;

(vi) Reinsurance fees;

(vii) Insurance premiums related to cancelled loans;

(viii) Borrower refunds, including those arising out of student or other borrower claims and defenses;

(ix) (A) The repayment, on or after December 29, 1993, of amounts credited under paragraphs (a)(1)(ii) or (ix) of this section, if the agency provides the Secretary 30 days prior notice of the repayment and demonstrates that—

(*1*) These amounts were originally received by the agency under appropriate contemporaneous documentation specifying that receipt was on a temporary basis only;

(*2*) The objective for which these amounts were originally received by the agency has been fully achieved; and

(*3*) Repayment of these amounts would not cause the agency to fail to comply with the minimum reserve levels provided by paragraph (a)(10) of this section, except that the Secretary may, for good cause, provide written permission for a payment that meets the other requirements of this paragraph (a)(2)(ix)(A) of this section.

(B) The repayment, prior to December 29, 1993, of amounts credited under paragraphs (a)(1) (ii) or (ix) of this section, if the agency demonstrates that—

(*1*) These amounts were originally received by the agency under appropriate contemporaneous documentation that receipt was on a temporary basis only; and

(*2*) The objective for which these amounts were originally received by the agency has been fully achieved.

(x) Any other payments necessary to perform functions directly related to the agency's guaranty activities and for their proper administration;

(xi) Notwithstanding any other provision of this section, any other payment that was allowed by law or regulation at the time it was made, if the agency acted in good faith when it made the payment or the agency would otherwise be unfairly prejudiced by the nonallowability of the payment at a later time; and

(xii) Any other amounts authorized or directed by the Secretary.

(3) *Accounting basis.* Except as approved by the Secretary, a guaranty agency shall credit the items listed in paragraph (a)(1) of this section to its reserve fund upon their receipt, without any deferral for accounting purposes, and shall deduct the items listed in paragraph (a)(2) of this section from its reserve fund upon their payment, without any accrual for accounting purposes.

(4) *Accounting records.* (i) The accounting records of a guaranty agency must reflect the correct amount of sources and uses of funds under paragraph (a) of this section.

(ii) A guaranty agency may reverse prior credits to its reserve fund if—

(A) The agency gives the Secretary prior notice setting forth a detailed justification for the action;

(B) The Secretary determines that the credits were made erroneously and in good faith; and

(C) The Secretary determines that the action would not unfairly prejudice other parties.

(iii) A guaranty agency shall correct any other errors in its accounting or reporting as soon as practicable after the errors become known to the agency.

(iv) If a general reconstruction of a guaranty agency's historical accounting records is necessary to make a change under paragraphs (a)(4) (ii) and (iii) of this section or any other retroactive change to its accounting records, the agency may make this reconstruction only upon prior approval by the Secretary and without any deduction from its reserve fund for the cost of the reconstruction.

(5) *Investments.* The guaranty agency shall exercise the level of care required of a fiduciary charged with the duty of investing the money of others when it invests the assets of the reserve fund described in paragraph (a)(1) of this section. It may invest these assets only in low-risk securities, such as obligations issued or guaranteed by the United States or a State.

(6) *Development of assets.* (i) If the guaranty agency uses in a substantial way for purposes other than the agency's guaranty activities any funds required to be credited to the reserve fund under paragraph (a)(1) of this section or any assets derived from the reserve fund to develop an asset of any kind and does not in good faith allocate a portion of the cost of developing and maintaining the developed asset to

funds other than the reserve fund, the Secretary may require the agency to—

(A) Correct this allocation under paragraph (a)(4)(iii) of this section; or

(B) Correct the recorded ownership of the asset under paragraph (a)(4)(iii) of this section so that—

(*1*) If, in a transaction with an unrelated third party, the agency sells or otherwise derives revenue from uses of the asset that are unrelated to the agency's guaranty activities, the agency promptly shall deposit into the reserve fund described in paragraph (a)(1) of this section a percentage of the sale proceeds or revenue equal to the fair percentage of the total development cost of the asset paid with the reserve fund monies or provided by assets derived from the reserve fund; or

(*2*) If the agency otherwise converts the asset, in whole or in part, to a use unrelated to its guaranty activities, the agency promptly shall deposit into the reserve fund described in paragraph (a)(1) of this section a fair percentage of the fair market value or, in the case of a temporary conversion, the rental value of the portion of the asset employed for the unrelated use.

(ii) If the agency uses funds or assets described in paragraph (a)(6)(i) of this section in the manner described in that paragraph and makes a cost and maintenance allocation erroneously and in good faith, it shall correct the allocation under paragraph (a)(4)(iii) of this section.

(*7*) *Third-party claims.* If the guaranty agency has any claim against any other party to recover funds or other assets for the reserve fund, the claim is the property of the United States.

(8) *Related-party transactions.* All transactions between a guaranty agency and a related organization or other person that involve funds required to be credited to the agency's reserve fund under paragraph (a)(1) of this section or assets derived from the reserve fund must be on terms that are not less advantageous to the reserve fund than would have been negotiated on an arm's-length basis by unrelated parties.

(9) *Scope of definition.* The provisions of this § 682.410(a) define reserve funds and assets for purposes of sections 422 and 428 of the Act. These provisions do not, however, affect the Secretary's authority to use all funds and assets of the agency pursuant to section 428(c)(9)(F)(vi) of the Act.

* * * * *

3. A new § 682.417 is added to subpart D to read as follows: § 682.417 *Determination of reserve funds or assets to be returned.*

(*a*) *General.* The procedures described in this section apply to a determination by the Secretary that—

(1) A guaranty agency must return to the Secretary a portion of its reserve funds that the Secretary has determined is unnecessary to pay the program expenses and contingent liabilities of the agency; and

(2) A guaranty agency must require the return to the agency or the Secretary of reserve funds or assets within the meaning of section 422(g)(1) of the Act held by or under the control of any other entity, that the Secretary determines are necessary to pay the program expenses and contingent liabilities of the agency or that are required for the orderly termination of the guaranty agency's operations and the liquidation of its assets.

(b) *Return of unnecessary reserve funds.* (1) The Secretary may initiate a process to recover unnecessary reserve funds under paragraph (a)(1) of this section if the Secretary determines that a guaranty agency's reserve fund ratio under § 682.410(a)(10) for each of the two preceding Federal fiscal years exceeded 2.0 percent.

(2) If the Secretary initiates a process to recover unnecessary reserve funds, the Secretary requires the return of a portion of the reserve funds that the Secretary determines will permit the agency to—

(i) Have a reserve fund ratio of at least 2.0 percent under § 682.410(a)(10) at the time of the determination; and

(ii) Meet the minimum reserve fund requirements under § 682.410(a)(10) and retain sufficient additional reserve funds to perform its responsibilities as a guaranty agency during the current Federal fiscal year and the four succeeding Federal fiscal years.

(3)(i) The Secretary makes a determination of the amount of the reserve funds needed by the guaranty agency under paragraph (b)(2) of this section on the basis of financial projections for the period described in that paragraph. If the agency provides projections for a period longer than the period referred to in that paragraph, the Secretary may consider those projections.

(ii) The Secretary may require a guaranty agency to provide financial projections in a form and on the basis of assumptions prescribed by the Secretary. If the Secretary requests the agency to provide financial projections, the agency shall provide the projections within 60 days of the Secretary's request. If the agency does not provide the projections within the specified time period, the Secretary determines the amount of reserve funds needed by the agency on the basis of other information.

(c) *Notice.* (1) The Secretary or an authorized Departmental official begins a proceeding to order a guaranty agency to return a portion of its reserve funds, or to direct the return of reserve funds or assets subject to return, by sending the guaranty agency a notice by certified mail, return receipt requested.

(2) The notice—

(i) Informs the guaranty agency of the Secretary's determination that the reserve funds or assets must be returned;

(ii) Describes the basis for the Secretary's determination and contains sufficient information to allow the guaranty agency to prepare and present an appeal;

(iii) States the date by which the return of reserve funds or assets must be completed;

(iv) Describes the process for appealing the determination, including the time for filing an appeal and the procedure for doing so; and

(v) Identifies any actions that the guaranty agency must take to ensure that the reserve funds or assets that are the subject of the notice are maintained and protected against use, expenditure, transfer, or other disbursement after the date of the Secretary's determination, and the basis for requiring those actions. The actions may include, but are not limited to, directing the agency to place the reserve funds in an escrow account. If the Secretary has directed the guaranty agency to require the return of reserve funds or assets held by or under the control of another entity, the guaranty agency shall ensure that the agency's claims to those funds or assets and the collectability of the agency's claims will not be compromised or jeopardized during an appeal. The guaranty agency shall also comply with all other applicable regulations relating to the use of reserve funds and assets.

(d) *Appeal.* (1) A guaranty agency may appeal the Secretary's determination that reserve funds or assets must be returned by filing a written notice of appeal within 20 days of the date of the guaranty agency's receipt of the notice of the Secretary's determination. If the agency files a notice of appeal, the requirement that the return of reserve funds or assets be completed by a particular date is suspended pending completion of the appeal process. If the agency does not file a notice of appeal within the period specified in this paragraph, the Secretary's determination is final.

(2) A guaranty agency shall submit the information described in paragraph (d)(4) of this section within 45 days of

the date of the guaranty agency's receipt of the notice of the Secretary's determination unless the Secretary agrees to extend the period at the agency's request. If the agency does not submit that information within the prescribed period, the Secretary's determination is final.

(3) A guaranty agency's appeal of a determination that reserve funds or assets must be returned is considered and decided by a Departmental official other than the official who issued the determination or a subordinate of that official.

(4) In an appeal of the Secretary's determination, the guaranty agency shall—

(i) State the reasons the guaranty agency believes the reserve funds or assets need not be returned;

(ii) Identify any evidence on which the guaranty agency bases its position that the reserve funds or assets need not be returned;

(iii) Include copies of the documents that contain this evidence;

(iv) Include any arguments that the guaranty agency believes support its position that the reserve funds or assets need not be returned; and

(v) Identify the steps taken by the guaranty agency to comply with the requirements referred to in paragraph (c)(2)(v) of this section.

(5)(i) In its appeal, the guaranty agency may request the opportunity to make an oral argument to the deciding official for the purpose of clarifying any issues raised by the appeal. The deciding official provides such an opportunity promptly after the expiration of the period referred to in paragraph (d)(2) of this section.

(ii) The agency may not submit new evidence at or after the oral argument unless the deciding official determines otherwise. A transcript of the oral argument is made a part of the record of the appeal and is promptly provided to the agency.

(6) The guaranty agency has the burden of production and the burden of persuading the deciding official that the Secretary's determination should be modified or withdrawn.

(e) *Third-party participation.* (1) If the Secretary issues a determination under paragraph (a)(1) of this section, the Secretary promptly publishes a notice in the **Federal Register** announcing the portion of the reserve fund to be returned by the agency and providing interested persons an opportunity to submit written information relating to the determination within 30 days after the date of publication. The Secretary publishes the notice no earlier than five days after the agency receives a copy of the determination.

(2) If the guaranty agency to which the determination relates files a notice of appeal of the determination, the deciding official may consider any information submitted in response to the **Federal Register** notice. All information submitted by a third party is available for inspection and copying at the offices of the Department of Education in Washington, D.C., during normal business hours.

(f) *Adverse information.* If the deciding official considers information in addition to the evidence described in the notice of the Secretary's determination that is adverse to the guaranty agency's position on appeal, the deciding official informs the agency and provides it a reasonable opportunity to respond to the information without regard to the period referred to in paragraph (d)(2) of this section.

(g) *Decision.* (1) The deciding official issues a written decision on the guaranty agency's appeal within 45 days of the date on which the information described in paragraphs (d)(4) and (d)(5)(ii) of this section is received, or the oral argument referred to in paragraph (d)(5) of this section is held, whichever is later. The deciding official mails the decision to the guaranty agency by certified mail, return receipt requested. The decision of the deciding official becomes the final decision of the Secretary 30 days after the deciding official issues it. In the case of a determination that a guaranty agency must return reserve funds, if the deciding official does not issue a decision within the prescribed period, the agency is no longer required to take the actions described in paragraph (c)(2)(v) of this section.

(2) A guaranty agency may not seek judicial review of the Secretary's determination to require the return of reserve funds or assets until the deciding official issues a decision.

(3) The deciding official's written decision includes the basis for the decision. The deciding official bases the decision only on evidence described in the notice of the Secretary's determination and on information properly submitted and considered by the deciding official under this section. The deciding official is bound by all applicable statutes and regulations and may neither waive them nor rule them invalid.

(h) *Collection of reserve funds or assets.* (1) If the deciding official's final decision requires the guaranty agency to return reserve funds, or requires the guaranty agency to require the return of reserve funds or assets to the agency or to the Secretary, the decision states a new date for compliance with the decision. The new date is no earlier than the date on which the decision becomes the final decision of the Secretary.

(2) If the guaranty agency fails to comply with the decision, the Secretary may recover the reserve funds from any funds due the agency from the Department without any further notice or procedure and may take any other action permitted or authorized by law to compel compliance.

[FR Doc. 94–19434 Filed 8–9–94; 8:45 am]
BILLING CODE 4000–01–P

federal register

Wednesday
August 10, 1994

Part VII

Department of Transportation

Federal Aviation Administration

14 CFR Parts 13 and 16
Practice and Procedure: Federally Assisted Airport Enforcement Proceedings; Proposed Rule

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 13 and 16

[Docket No. 27783; Notice No. 94–18]

RIN 2120–AF–43

Rules of Practice for Federally Assisted Airport Proceedings

AGENCY: Department of Transportation (DOT), Federal Aviation Administration (FAA).

ACTION: Notice of proposed rule (NPRM); extension of comment period.

SUMMARY: This document announces an extension of the comment period on Notice 92–18, entitled, "Rules of Practice for Federally Assisted Airport Proceedings," Docket No. 27783 (59 FR 29880, June 9, 1994). The notice provided a comment period extending until August 8, 1994. The comment period for the notice is extended until September 15, 1994. The extension responds to requests by the Airports Council International—North America (ACI–NA), the American Association of Airport Executives (AAAE), and the Air Transport Association of America (ATA). The extension will permit interested parties additional time to develop comments and will provide commenters the opportunity to consider the effects of any legislation adopted by Congress that may affect the proposed policy and rules.

DATES: The comment period is being extended from August 8, 1994, to September 15, 1994.

ADDRESSES: Comments should be mailed, in triplicate, to: Federal Aviation Administration, Office of Chief Counsel, Attention: Rules Docket (AGC–10), Docket No. 27783, 800 Independence Avenue SW., Washington, DC 20591. All comments must be marked: "Docket No. 27783." Comments on this Notice may be examined in room 915G on weekdays, except on Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Barry Molar, Airports Law Branch (AGC–610), Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591, telephone (202) 267–3473.

SUPPLEMENTARY INFORMATION: On June 9, 1994, the Office of the Secretary of Transportation (OST) and the FAA issued two related notices on the subject of Federal policy on airport rates and charges. A notice of proposed policy entitled "Proposed Policy Regarding Airport Rates and Charges," listed and explained the principles that the OST and the FAA believe define Federal policy on the rates and fees that an airport proprietor can charge to aeronautical users of the airport. (59 FR 29874). Notice 94–18, a notice of proposed rulemaking entitled "Rules of Practice for Federally Assisted Airports," proposed detailed procedures for the filing, investigation, and adjudication of complaints against airports for alleged violation of Federal requirements involving rates and charges and other airport-related requirements.

By letters filed in both dockets, ACI–NA, AAAE, and ATA request an extension of the comment period for both notices. The commenters request an extension because they believe that additional time is needed to coordinate with members of each organization and formulate a position, and because legislation now under consideration by Congress could require DOT/FAA to make changes in one or both notices. The commenters request an extension of 4 weeks from the date a conference report is issued on the pending legislation or from the date of enactment of new legislation.

In order to provide persons interested in the notices the opportunity to consider their positions in light of congressional action, and to provide additional time to prepare comments, the OST and the FAA find that it would be in the public interest to extend the comment period for a reasonable time. Accordingly, the comment periods for the notice of proposed policy and the notice of proposed rulemaking are both extended from August 8 to September 15, 1994.

In the event that legislation is enacted that requires that a final policy statement and final rule be issued by a certain date, the OST and the FAA may issue a subsequent notice shortening the comment period if necessary to meet the statutory deadline for a final rule. Notice of any further change in the comment period would be published in the **Federal Register**.

Issued in Washington, DC, on August 3, 1994.

Mark L. Gerchick,

Chief Counsel, Federal Aviation Administration.

[FR Doc. 94–19555 Filed 8–5–94; 4:26 pm]

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federal register

Wednesday
August 10, 1994

Part VIII

Department of Transportation

Federal Aviation Administration

Proposed Policy Regarding Airport Rates and Charges; Notice

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

[Docket No. 27782]

Proposed Policy Regarding Airport Rates and Charges

AGENCY: Department of Transportation (DOT), Federal Aviation Administration (FAA).

ACTION: Notice of proposed policy; extension of comment period.

SUMMARY: This document announces an extension of the comment period on Notice of Proposed Policy Regarding Airport Rates and Charges, Docket No. 27782 (59 FR 29874, June 9, 1994). The notice provided a comment period extending until August 8, 1994. The comment period is extended until September 15, 1994. The extension responds to requests by the Airports Council International—North America (ACI–NA), the American Association of Airport Executives (AAAE), and the Air Transport Association of America (ATA). The extension will permit interested parties additional time to develop comments and will provide commenters the opportunity to consider the effects of any legislation adopted by Congress that may affect the proposed policy.

DATES: The comment period is being extended from August 8, 1994, to September 15, 1994.

ADDRESSES: Comments should be mailed, in triplicate, to: Federal Aviation Administration, Office of Chief Counsel, Attention: Rules Docket (AGC–10), Dockets No. 27782, 800 Independence Avenue, SW., Washington, DC 20591. All comments must be marked: "Docket No. 27782." Comments on this Notice may be examined in room 915G on weekdays, except on Federal holidays, between 8:30 a.m. and 5 p.m.

FOR FURTHER INFORMATION CONTACT: Mr. Barry Molar, Airports Law Branch (AGC–610), Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591, telephone (202) 267–3473.

SUPPLEMENTARY INFORMATION: On June 9, 1994, the Office of the Secretary of Transportation (OST) and the FAA issued two related notices on the subject of Federal policy on airport rates and charges. A notice of proposed policy entitled "Proposed Policy Regarding Airport Rates and Charges," listed and explained the principles that the OST and the FAA believe define Federal policy on the rates and fees that an airport can charge to aeronautical users of the airport. Notice 94–18, a notice of proposed rulemaking entitled "Rules of Practice for Federally Assisted Airports," proposed detailed procedures for the filing, investigation, and adjudication of complaints against airports for alleged violation of Federal requirements involving rates and charges and other airport-related requirements (59 FR 29880, June 9, 1994).

By letters filed in both dockets, ACI–NA, AAAE, and ATA request an extension of the comment period for both notices. The commenters request an extension because they believe that additional time is needed to coordinate with members of each organization and formulate a position, and because legislation now under consideration by Congress could require DOT/FAA to make changes in one or both notices. The commenters request an extension of 4 weeks from the date a conference report is issued on the pending legislation or from the date of enactment of new legislation.

In order to provide persons interested in the notice the opportunity to consider their positions in light of congressional action, and to provide additional time to prepare comments, the OST and the FAA find that it would be in the public interest to extend the comment period for a reasonable time. Accordingly, the comment period for the notice of proposed policy and the notice of proposed rulemaking are both extended from August 8 to September 15, 1994.

In the event that legislation is enacted that requires that a final policy statement and final rule be issued by a certain date, the OST and the FAA may issue a subsequent notice shortening the comment period if necessary to meet the statutory deadline for a final rule. Notice of any further change in the comment period would be published in the **Federal Register**.

Issued in Washington, DC, on August 3, 1994.

Mark L. Gerchick,

Chief Counsel, Federal Aviation Administration.

[FR Doc. 94–19554 Filed 8–5–94; 4:26 pm]

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federal register

Wednesday
August 10, 1994

Part IX

Department of Housing and Urban Development

Office of the Assistant Secretary for Community Planning and Development

24 CFR Part 570

Community Development Block Grant Program; Miscellaneous Amendments to Correct Identified Deficiencies; Proposed Rule

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Office of the Assistant Secretary for Community Planning and Development

24 CFR Part 570

[Docket No. R–94–1701; FR–2772–P–01]

RIN 2506–AB01

Community Development Block Grant Program; Miscellaneous Amendments to Correct Identified Deficiencies

AGENCY: Office of the Assistant Secretary for Community Planning and Development, HUD.

ACTION: Proposed rule.

SUMMARY: This rule contains: a proposed definition of "income" for families and households, a proposed change in the calculation of the planning and administration limitation; a proposed change removing the special protection afforded program income in revolving funds; a proposed change to the § 570.207(b)(4) definition of ineligible income payments; a proposed change to reorganize the section of the rule describing the statement of community development objectives, to prescribe the manner of its submission, to permit consolidation of amendment submissions, and to add a provision for describing "float-funded" activities in the statement; a proposed change specifying three situations in which income earned on grant funds must be remitted to the U.S. Treasury; a proposed change restricting use of CDBG funds outside the jurisdiction of the recipient; a proposed change to require transfer of excess program income to the line of credit; a proposed change to authorize the Department to delay making a CDBG grant to any community whose Grantee Performance Report (GPR), at the time the grant is to be awarded, has not been submitted in a manner consistent with the GPR Form Instructions; and proposed performance standards to replace the Housing Assistance Plan (HAP) standards at § 570.903, for determining whether a grantee has carried out its certification concerning following its Comprehensive Housing Affordability Strategy (CHAS).

Most of the described changes are proposed in response to problems HUD has identified in its administration of the program. Many of these proposals are the direct recommendations or suggestions of the Department's Inspector General.

DATES: Comments due date: October 11, 1994

ADDRESSES: Interested persons are invited to submit comments regarding this proposed rule to the Rules Docket Clerk, Office of General Counsel, Room 10276, Department of Housing and Urban Development, 451 Seventh Street SW, Washington, DC 20410. Communications should refer to the above docket number and title. A copy of each communication submitted will be available for public inspection during regular business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Deirdre Maguire-Zinni, Acting Director, Entitlement Communities Division, Room 7282, Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, DC 20410, telephone number (202) 708–1577. A telecommunications device for deaf persons (TDD) is available at (202) 708–2565. FAX inquiries (but not comments on the rule) may be sent to Mr. Broughman at (202) 708–2575. (These telephone numbers are not toll-free.)

SUPPLEMENTARY INFORMATION:

Background

This proposed rule would revise the Community Development Block Grant Program (24 CFR Part 570) to respond to perceived problems and abuses HUD has identified in the program. This rule contains: 1) a proposed definition of "income" for families and households that will continue to allow some grantee discretion in the selection of a definition while setting the parameters of the choices; 2) a proposed change in the calculation of the planning and administration limitation to establish the specific, exclusive method for calculation; 3) a proposed change removing the special protection afforded program income in revolving funds; 4) a proposed change to § 570.207(b)(4) clarifying the definition of ineligible income payments and lessening its coverage; 5) a proposed change to reorganize the section of the rule describing the statement of community development objectives, to prescribe its content and the manner of its submission, to permit consolidation of amendment submissions, and to add a provision for describing how "float-funded" activities must be shown in the statement; 6) a proposed change to specify when income earned on grant funds must be remitted to the U.S. Treasury; 7) a proposed change restricting use of CDBG funds outside the jurisdiction of the recipient to instances in which such use will principally benefit residents of the recipient; 8) a proposed change that will remove an incentive for grantees to make loans to earn income by requiring transfer of excess program income to the line of credit; 9) a proposed change to authorize the Department to delay making a CDBG grant to any community whose Grantee Performance Report (GPR), at the time the grant is to be awarded, has not been submitted in a manner consistent with the GPR Form Instructions; and 10) proposed performance standards to replace the Housing Assistance Plan (HAP) standards at § 570.903, for determining whether a grantee has carried out its certification concerning following its Comprehensive Housing Affordability Strategy (CHAS). Many of these proposals are the direct recommendations or suggestions of the Department's Inspector General.

The Department recently published consolidated submission and reporting requirements, in another proposed rule. Differences between this program-specific rule and that more broad-based rule be resolved before final regulations are issued.

Definition of Income

Changes are proposed at 24 CFR 570.3. This proposed rule would for the first time define what constitutes income for purposes of determining whether persons or households qualify as low or moderate income under the CDBG program. To preserve the flexibility of the program while ensuring greater uniformity in the critical program issue of determining the extent to which low- and moderate-income persons benefit from CDBG-funded activities, the Department is proposing that the grantee be required to select either of the Section 8, Census Long Form, or IRS Adjusted Gross definitions of what is income for each type of activity benefiting low- and moderate-income persons. (The rule makes slight modifications to the Section 8 definition to bring it into accord with the CDBG program purposes.) The option to choose a definition does not apply to activities that qualify for the low- and moderate-income area benefit criteria in § 570.208(a)(1) except when the recipient carries out a survey. Activities qualifying under § 570.208(a)(1) generally must use the area income data, which is taken from the decennial census and supplied to recipients by HUD.

HUD believes a definition of income is desirable to ensure that when CDBG funds are used to address the national objective of benefiting persons of low and moderate income, those deemed to benefit are actually low- and moderate-income persons. The Department repeatedly has received questions about

the definition of income, and is aware of the potential for abuse in this area.

In 1984, HUD proposed definitions of low- and moderate-income household, low- and moderate-income person, low-income household, low-income person, moderate-income household, and moderate-income person that included a reference to the definition of income under the Section 8 Housing Assistance Payments program at 24 CFR Part 813. As the September 6, 1988, preamble to the Final Rule stemming from that proposal noted:

> The majority of commenters objected to the reference * * * because they concluded that grantees would be required to calculate income eligibility for the CDBG program in exactly the same manner as for the Section 8 program. Several commenters pointed out that the use of the Section 8 methodology would make many low- and moderate-income homeowners ineligible for rehabilitation activities and for jobs created by economic development projects. This was the case, commenters said, because under Section 8 procedures real property assets are considered in determining income levels.

At the time the referenced definitions were proposed, HUD only intended to reflect the requirements at section 102(a)(20) of the Housing and Community Development Act of 1974 (the Act) that the *income limits* established for CDBG purposes must be equivalent to those used in the Section 8 program. Therefore, the proposed reference to the definition of annual income at part 813 was removed in the Final Rule, and the following was added: "The method for determining income under the Section 8 Housing Assistance Payments program need not be used for this purpose." This rule proposes to remove the quoted sentence wherever it appears. The definitions proposed in this rule would be used in calculating incomes of individual families and households to be applied against the established income limits in determining whether such families and households are low or moderate income under the CDBG program.

The Inspector General has repeatedly expressed its preference that the CDBG program have an easily verifiable definition of income to standardize income qualification across the country and to help limit the risk of abuse in this area.

In developing a proposed definition, the Department decided to review a number of Federal definitions already in use by grantees and beneficiaries before beginning completely anew. Use of an established definition should pose fewer training problems and lower changeover costs for grantees, as well as offering the potential of "doubling up" on verifications. Before proposing the definition in this rule, the Department reviewed the definitions used under Section 8, Aid for Families with Dependent Children (AFDC), Food Stamps, National Student Lunch, and Food Distribution Programs, and the Census and IRS definitions of income. In selecting the approach proposed in this rule, HUD used the following criteria in judging the various definitions reviewed: comprehensiveness (covered most sources/fewest exclusions); verifiability; familiarity of the definition to HUD staff, grantees and beneficiaries; fit with the objectives and practices of the CDBG program; and ease of administration. The three definitions that HUD believes most closely meet the above criteria are the Section 8 definition, the Census definition, and the IRS Adjusted Gross Income definition.

One option considered was a modified Section 8 definition of annual income. The Section 8 definition is second to the IRS definition in comprehensiveness of income sources considered and its exclusions are close to the other aid program definitions. (Census has no exclusions, and IRS has a very limited number.) Agencies verifying income under the Section 8 definition could validate beneficiaries' income by direct contact with employers or assistance agencies. This definition is familiar to many HUD staff and the housing staff of many CDBG grantees. While it may be familiar to persons administering housing-related assistance under the CDBG program, it is less likely to be familiar to grantee and subrecipient staff administering economic development and public service activities. Because the CDBG program considers income of the family or household *at the time assistance is provided*, ease of administration primarily means ease in explaining the definition to the beneficiary and calculating income. (Considering income at the time assistance is provided means that the annual income of the family or household, as applicable, should be projected based on the prevailing rate of income of each person at the time assistance is provided.) The Section 8 definition, with a fairly large number of exclusions from income, can take some time to explain and calculate. In particular, estimating the value of Net Family Assets and calculating the income attributable to the assets in excess of $5000 can sometimes be difficult. For example, if a grantee wants to provide an economic development loan to a business for working capital, and intends to meet the national objective of low- and moderate-income job creation and retention, each of the benefiting employees would have to undergo an assets review if the use of the section 8 definition were to be mandatory. Note that the need to apply the Net Family Asset calculation is probably perfunctory in the Section 8 (rental assistance) program since persons receiving a rental subsidy are not likely to own a house and few would have many other includable assets. On the other hand, it is arguable that, from the standpoint of the objectives of the CDBG program, inclusion of some part of the value of major non-income producing assets would be desirable to help focus assistance on the more needy, particularly with respect to the elderly who may not have much annual income but have high value assets.

The Census definition reviewed was that used for the decennial census so called "long form." It has both the fewest inclusions and the fewest exclusions of the definitions reviewed. All of the inclusions except "net income from operation of a business" could be easily verified by contacting employers and assistance agencies. There are no exclusions. Grantee and HUD staff and beneficiaries are not likely to be familiar with the definition, unless they have recently completed a census long-form questionnaire. It is noteworthy that income based on the Census definition is used by HUD for CDBG formula allocation and low- and moderate-income summary data by Census tract and block group. The definition would probably be easy to explain to beneficiaries and to calculate, and would likely be the simplest definition to use for an income survey for determining the percent of low- and moderate-income persons in an area. The definition does not attribute income to ownership of non-income-producing assets.

The IRS definition of "adjusted gross income" on IRS Form 1040 has the largest number of inclusions and a very small number of adjustments. Adjusted gross income can be verified by calling employers and assistance agencies, as well as by reviewing actual tax returns (that, although they may not be submitted to the IRS at the same time as the assistance was provided, can provide a validity check for the income reported by the beneficiary then). The IRS definition is very likely to be familiar to grantee and HUD staff, and to most beneficiaries. While it is not designed to calculate family or household income (including dependents), it can easily be adapted. For some beneficiaries, calculating all

the inclusions (such as business income or loss) may be difficult. With few exclusions to consider, the definition should be moderately easy to explain and administer. A further advantage of the IRS definition is that agencies can easily take advantage of inexpensive off-the-shelf software to automate and document its use. This definition also does not attribute income to ownership of non-income-producing assets. This definition is likely to be the easiest to administer for special economic development activities in cases in which the assisted business is collecting income information. Most of these businesses will not be familiar with any federal income definition other than that of the IRS.

In this rule, the Department is proposing that a recipient be allowed to select and use the Section 8, Census, or IRS Adjusted Gross Income definition for each of its CDBG activity types. (A grantee could also elect to use one definition for all its activity types.) When the CDBG activity is homeowner rehabilitation, the net value of the primary residence of the beneficiary may be excluded from Net Family Assets where the recipient is using the Section 8 definition. As noted, all CDBG entitlement recipients would be required to use one of the three definitions for each activity. For administrative reasons, the Department recommends, but does not propose to require, use of the modified Section 8 definition for housing and housing-related activities, especially those that are also assisted by other HUD programs (such as HOME or HOPE or Section 8). Also, the Department is aware that grantees may follow somewhat different standards when computing relocation payments.

This rule would not change the requirements at § 570.506(b) regarding records to be maintained when information on income by family size is required. That is, the grantee could still elect to keep records to show either that 1) the person assisted qualified under another assistance program with income qualification standards at least as restrictive as the CDBG definitions, 2) a copy of a verifiable certification (based on one of the three proposed definitions) from the assisted person was obtained, or 3) the person was referred from an agency that determined the individual's income status and maintains appropriate documentation.

One further note: this rule does *not* propose to require recipients to use a particular standard procedure for determining the amount of benefit to be provided, such as that used in HUD's housing programs for determining a family's contribution toward rent. This rule only specifies what components must be included in the calculation of income. Each recipient remains free to determine the level of benefit, such as the amount of rehabilitation subsidy, it considers to be necessary and reasonable for each CDBG-assisted activity.

Calculating the Planning and Administration Limitation

This proposed rule includes changes at § 570.200(g). The language at § 570.200(g) on the 20 percent limitation on expenditures for planning and administration for entitlement recipients would be revised to establish the specific, exclusive method for calculation of this limitation. While the vast majority of entitlement recipients have followed the guidelines in the current rules for calculating expenditures without regard to the source year of funds used to pay for such costs, some recipients have continued to claim compliance based on individual source years. Recipients would no longer be allowed to demonstrate compliance by apportioning planning and administrative expenses to each source year of CDBG funds.

The Department has determined that it is no longer advisable to allow entitlement recipients to meet this requirement on a "source year" basis for the following reasons:

a) The Grantee Performance Report (GPR), HUD's principal tool for determining compliance with the 20 percent limitation, does not track expenditures on a source year basis; and,

b) the Department has concluded that the allocation of expenditures for program administration against individual activities is inherently arbitrary, and thus is likely to result in an inaccurate measure of how much of the total expenditures for administration in a given year applies to any individual activity. For example, a recipient may have spent $100,000 administering an ongoing rehabilitation loan program in FY 1992. The money used to fund the loans in FY 1992 included grant funds received in FY 1992 and previous years, and program income from repayments of loans received over multiple years. To make the calculations necessary to allocate the $100,000 expenditure for program administration on a source year basis, the recipient must assign each dollar spent for making loans that year to a source year. Such assignment is a cumbersome, difficult task fraught with the potential for error. With this proposed regulation, HUD would assure the uniformity of the procedures used by all entitlements, and further ensure that the administrative and planning limitation will be calculated in the most efficient way.

Prohibition of Income Payments

The prohibition against income payments at § 570.207(b)(4) in the current rule was principally intended to keep CDBG funds from providing ongoing cash payments directly to individuals to provide for their subsistence. For example, this would include making monthly payments to an individual to allow that individual to pay for housing, food, clothes, day care, or utilities. However, the Department has determined that the current provision goes too far beyond that objective. The proposed redefinition at § 570.207(b)(4) reflects this determination. The Department has further determined that, although downpayment assistance is listed as an example of an income payment in the current rule, a one-time payment for downpayment assistance should not be classified as an income payment for these purposes. Therefore, under this proposed rule downpayment assistance to individual homebuyers would be provided with CDBG in one of three ways: (1) under the Direct Homeownership provision of the National Affordable Housing Act (NAHA) (currently due to terminate in October, 1994); (2) under § 570.202(b)(1) to assist acquisition for the purpose of rehabilitation; or (3) under § 570.201(e) as an eligible public service activity. The Department has also determined that *loans* to individuals to provide for their subsistence are not ongoing cash payments and therefore proposes that they be considered eligible public services rather than income payments. A conforming change is also being proposed in § 570.201(e).

Reorganization, Standard Submission, and Float-Funded Activities in the Statement of Community Development Objectives (Final Statement)

This portion of the rule proposes several changes at § 570.301 to the requirements for the statement of community development objectives, generally known as the final statement, that grantees are required to submit to HUD in order to receive their grants. On March 28, 1990, HUD published a proposed regulation to implement certain statutory changes to the CDBG program made in the Housing and Community Development Act of 1987 (Pub. L. 100–242, approved February 5, 1988) and the Department of Housing and Urban Development—Independent

Agencies Appropriations Act of 1989 (Pub. L. 100–404, approved August 19, 1988). A final rule implementing these 1987 changes has not yet been issued. Section 570.301 is among the sections of the CDBG rule that will be altered from the rule presently in effect in the forthcoming final rule. This proposed rule deals with and clarifies matters that were not addressed by the previous proposed rule. Readers should note that the text proposed here for § 570.301(c) was developed on the premise that the basic requirements of § 570.301 (a) and (b), as published in the previous proposed rule, will be similar to those expected to be published in the final rule. The Department recently published consolidated submission requirements, in another proposed rule. Differences between this program-specific rule and that more broad-based rule will be resolved before final regulations are issued.

In this rule, first, for clarity, the rule would be reorganized into sections on sources and uses of funds, content of the statement, citizen participation, and float-funded activities. Second, the final statement would be required to be submitted in a manner prescribed by HUD. Third, the details concerning required content and citizen participation would be more clearly specified. Fourth, the rule would permit final statement amendments to be submitted to HUD in consolidated form at the end of the program year. Finally, float-funded activities and the circumstances under which they would be authorized would be defined and a procedure described for identifying such activities in the statement.

The second and third changes, which would require the final statement to contain certain specific details and to be submitted in a manner prescribed by HUD, are intended to serve four purposes. First, citizens would be better able to follow CDBG activities through the entire program cycle because the prescribed submission would share many common elements with the grantee performance report (GPR). Second, a standard submission would ensure that all citizens receive a comparable basic level of information on all proposed activities. Third, standard submissions would improve the efficiency of HUD's processing of the final statement, and its ability to train grantee and HUD staff on final statement requirements. Finally, making the final statement submission standard for all grantees would facilitate automation of the statement, linking that automation to an automated GPR. Ultimately, this automation could save grantees and HUD much time and effort, while preserving grantee flexibility in deciding how funds will be used.

The fourth change, allowing consolidation of amendment submissions, is being proposed for the sake of increased efficiency for grantees.

The final change is being proposed because of difficulties experienced by HUD with management of "float" activities, including those identified in the Inspector General's audit of CDBG interim financing. For purposes of this section, an activity that uses undisbursed funds in the line of credit or program account that have been previously budgeted in a final statement for one or more activities that do not need the funds immediately would be called a "float-funded activity." HUD has long held that a float-funded activity must meet all of the same requirements that apply to CDBG-assisted activities generally. However, the regulations have been silent on managing these activities. After review, the Department has determined that the primary risks to the CDBG program inherent in the float funding process are, first, that the float-funded activity will not generate sufficient program income in a timely manner to allow for timely undertaking of previously budgeted activities. Second, if proposed float-funded activities and the possible consequences of their default are not disclosed to citizens in sufficient detail, they will not be afforded sufficient information to fully understand how they may be affected by each activity, and thus not have the opportunity to object to such a use of the funds. Third, in undertaking a float-funded activity that exceeds a certain size or duration, grantees apparently assume that they will receive sufficient additional CDBG funds in future years to continue funding previously budgeted activities until the float-funded activity generates program income. However, grantees are only authorized to use such a funding technique (e.g. banking on future CDBG funds as assurance to backstop a large loan for a particular activity in the present) under the section 108 Loan Guarantee program.

The proposed rule would either eliminate the first risk by requiring one of two forms of guarantee for the float funds, or limit it by requiring a commitment for timely identification of specific previously budgeted activities that would be deleted. The second risk would be limited by requiring more detailed information to be provided to citizens on each float-funded activity. The third factor would be minimized by limiting CDBG float-funded activities to those that are expected to generate program income within a period of time defined in the regulation. The proposed time limit was selected keeping the standards at § 570.902(a) in mind. Sixty days prior to the end of any program year, the amount of CDBG funds in the line of credit should be no more than 1.5 times the amount of the current grant amount. Then, at the beginning of any program year, with the new grant in the line of credit, the maximum amount in the line of credit could be as much as 2.5 times the annual grant amount. Therefore, 2.5 years was selected as the maximum duration of any float-funded activity, since this is the maximum time period that a grantee could be reasonably certain of having CDBG funds available absent additional appropriations. The Department requests comment on these provisions and also whether the rule should additionally specify a limit on the proportion of a grantee's funds that it could use for float-funded activities at any one period in time.

Spending Funds Outside the Jurisdiction of the Recipient

This portion of the proposed rule would add a new § 570.309. In the early years of the CDBG program, HUD would likely find an application that proposed spending CDBG funds outside of the jurisdiction of the grantee to be plainly inappropriate to address the identified needs of the jurisdiction. Under the statute then, such a finding was the basis for HUD to disapprove the application. Since 1981, the regulations have been silent on this matter, but the Department has ruled in several cases that a grantee's decision to spend CDBG funds outside the jurisdiction was allowable. The Department now believes that it would be helpful to state clearly the circumstances under which this practice is allowed in order to remove any uncertainty on the part of grantees and auditors. The limitation proposed (i.e. that the principal benefit of such an activity must be for residents of the jurisdiction of the recipient) is important to ensure that the community's share of the national appropriation of entitlement funds, which is based on the community's relative share of needs, is expended in a manner that addresses the needs for which the funds were provided. What would be precluded by this change is the lending of CDBG funds to entities outside the grantee's jurisdiction when the principal benefit to the jurisdiction would be interest earned on the loan. Thus an urban county would not be authorized to loan funds to non-participating units of general local government within the boundaries of the county unless the urban county

could make the required determination that the activity (without regard to the use of the interest expected to be earned on a loan made for the activity) would principally benefit citizens within the urban county.

Revolving Funds

This portion of the proposed rule includes changes at §§ 570.500(a)(1)(viii), 570.502(a)(5), 570.500(b), and 570.504(b)(2)(i). A revolving fund is defined at § 570.500(b) to mean "* * * a separate fund (with a set of accounts that are independent of other program accounts) established for the purpose of carrying out specific activities which, in turn, generate payments to the fund in carrying out the same activities." Revolving funds are used most frequently in connection with rehabilitation and economic development projects that involve loans.

Revolving funds are established and administered typically in the following manner. A loan is made with CDBG funds (e.g., to a private property owner to rehabilitate her home). Payments on that loan (i.e., principal or interest, or both) constitute program income that is credited as CDBG program income on the grantee's books and held in an account independent of other program accounts. The program income in that account, including interest earned on the funds while on deposit pending their re-use, becomes the source of financing for additional loans of the same type (e.g., housing rehabilitation). Hence, the term "revolving fund" has been used to describe such a fund.

Of course, much of the same objective could be achieved without the need to establish an independent account. Loan payments could simply be placed in the grantee's general CDBG account. (The entity used for other CDBG funds would vary from community to community; however, CDBG funds are often budgeted and accounted for in a special revenue fund.) Program income generated by a particular activity could be earmarked in advance for use in carrying out additional transactions (e.g., loans) involving the same kind of activity (e.g., housing rehabilitation).

However, the use of a revolving fund has another advantage over the fund used to budget and account for other CDBG funds, besides the fact that the community does not have to reconsider the use of program income generated by a particular activity following its receipt. The second advantage is the special treatment given program income in revolving funds under the current CDBG regulations. A recipient that establishes a revolving fund to carry out a particular activity must substantially disburse any program income in that fund before making additional cash withdrawals from the Treasury for the same kind of activity; however, the recipient may make additional withdrawals from the Treasury for other activities before substantially disbursing the program income from the revolving fund. This authority appears to have created an incentive for some grantees to create revolving funds to shelter the program income on hand from cash withdrawal requirements and to earn interest income from the investment of the program income pending its use for the revolving fund activity. There is also some indication that it has created the incentive for some grantees to delay the reuse of the funds, since the longer the funds stay in the account the more interest they earn while on deposit.

The HUD Inspector General has identified a number of cases where funds in a revolving account were clearly not being used in a timely manner. Because of the fact that the grantees involved were allowed to leave the funds in a revolving account and to draw funds from their lines of credit to meet their cash needs for other CDBG assisted activities, this has resulted in additional, and seemingly unwarranted, cost to the U.S. Treasury. HUD is generally in favor of the use of revolving funds, since it is a sensible way to program funds to meet ongoing needs, such as housing rehabilitation and business assistance. However, it must also be concerned about avoiding unnecessary costs to the Treasury. Under this proposed rule, recipients would no longer be authorized to shelter program income in revolving funds. The proposed rule would require that all program income, including program income in a revolving fund, be disbursed before further cash withdrawals are made from the U.S. Treasury.

The changes made by this rule would not preclude the use of funds in a revolving manner. However, the Department recognizes that compliance with the proposed rule's requirement that all program income be disbursed before additional cash withdrawals are permitted would make administration of revolving funds more complicated. This additional complexity may, as a practical matter, make revolving funds infeasible for some grantees.

Other options that HUD believes might be used to address the problem include:

(1) limiting the amount of program income in any revolving fund to the amount that could be expected to be needed for funding the activity within a certain time period (such as 30 days); and

(2) limiting the number of revolving funds per recipient.

However, each of these has a drawback. A limitation on the amount allowed in a revolving account would mean additional administrative burden for both the grantee and HUD to ensure compliance with such a limitation. A limit on the number of revolving funds might pose an undesirable restriction on a grantee's capacity to address its needs in the most sensible way. Because of these problems and since these options would still permit funds to be withdrawn from the Treasury for other purposes while program income is available to the recipient, they were not selected to be proposed for this rule.

The Department requests comments on this proposed provision that explain how the benefits of using revolving funds as they are under current rules might be considered to outweigh the costs to the U.S. Treasury. Comments are particularly solicited that would identify the advantages of the current system that go beyond the obvious ones of administrative convenience and the additional interest income earned by a grantee as a result of the investment of program income while sheltered in a revolving account. Specifically, the Department would be interested in determining the amount of any additional program costs that might result from administering revolving fund activities under this proposed rule so that cost could be compared with the likely savings to the Treasury.

Therefore, the changes proposed in this rule would remove the language at §§ 570.504(b)(2)(i) and (ii) that permits recipients to shelter program income in revolving funds. The proposed rule would require all program income to be substantially disbursed before additional cash withdrawals were made. The reference at § 570.500(a)(1)(viii) to interest earned in revolving funds would be removed, and the subparagraph would be reserved. The definition of revolving fund at § 570.500(b) would be removed and the paragraph reserved.

Income Earned on Grant Funds

The proposed rule includes a change at § 570.500(a)(2) concerning interest earned on ineligible loans and reimbursed funds. This change is one of several in this rule resulting from the HUD Inspector General's review of the CDBG program. It also reflects a recent decision by the Comptroller General of the United States (issued May 11, 1992) with respect to interest earned on

unauthorized loans of Federal grant funds.

This proposed rule specifies three situations in which income earned on grant funds must be remitted to HUD for transmittal to the U.S. Treasury. The first is interest earned from the investment of the initial proceeds of a grant advance by the U.S. Treasury (e.g., funds wire-transferred to a recipient pursuant to a withdrawal from its line of credit for a grant). The second situation is income (e.g., interest) earned on loans or forms of assistance made with CDBG funds that are used for activities determined by HUD either to be ineligible or to fail to meet a national objective in accordance with the requirements of subpart C of this part, or fail substantially to meet any other requirement of this part. The third situation is interest earned on amounts that have been reimbursed pursuant to § 570.910(b)(5) prior to the funds being used for eligible purposes.

Return of Excess Program Income

This portion of the proposed rule includes changes at § 570.504(b)(2) and § 570.503(b)(3). Under the current rules, there is an incentive for a recipient to make quick turnaround loans—even if the recipient does not earn interest on the loans. By making such a loan, the recipient, in effect, quickly changes the nature of the funds to program income. It may then place them in its program account and earn interest pending the use of the funds to meet cash needs of the program. The proposed changes would remove an incentive for recipients to make loans to earn income rather than using the funds strictly for community development purposes. The rule does this by requiring all program income held by an entitlement recipient that is in excess of one-twelfth of the most recent grant made pursuant to § 570.304 to be remitted to HUD to be restored to the recipient's line of credit, and by requiring that each subrecipient agreement specify that any program income held by the subrecipient that is in excess of one-twelfth of its estimated annual expenditure of CDBG funds be remitted to the recipient (thus, if the subrecipient agreement is for a twelve-month period, the amount of program income would be one-twelfth of the agreement amount).

Grant Delays for GPRs that are Inconsistent with Instructions

This portion of the proposed rule includes changes at §§ 570.304, 570.900 and 570.910. The Department considers the Grantee Performance Report (GPR) to be the foundation of HUD's ability to fulfill the statutory requirement that it review each grantee's performance at least annually. Some time ago, the Department, through its Financial Management Task Force, determined that it needed to take action against grantees that failed to submit reports in the prescribed forms in a timely manner. To accomplish this, the Task Force recommended that HUD amend the CDBG regulations to authorize HUD to hold back on making grants in cases where previous GPRs have not been submitted in a manner consistent with GPR Form Instructions. The purpose of the rule is to bring pressure to bear on grantees that are seriously delinquent in this matter. The language of the rule would only affect the most egregious cases, because a GPR is due nine months before the next grant is made. (For example, City X ends its program year 15 on June 30, 1993. HUD then makes the grant for program year 16 on July 1. The city's GPR for program year 15 will be due on September 30, 1993. If that GPR is not properly submitted by June 30, 1994, this rule would allow HUD to delay making the program year 17 CDBG grant, otherwise due on July 1, 1994, until the overdue report is properly submitted.) The rule would not permit delaying the grant simply because the GPR was submitted late, if it is submitted in proper form by the time the new grant is to be made, although persistent lateness by a grantee could be addressed through the use of the sanctions provisions at §§ 570.910, 570.911, and 570.913.

CHAS Performance Standards for CDBG Entitlements

This proposed rule describes the review standards HUD proposes to use in determining whether a CDBG entitlement recipient is following a current HUD-approved Comprehensive Housing Affordability Strategy (CHAS), as it is required to certify under § 570.303(l). These standards would replace those for the Housing Assistance Plan (HAP) that itself has been replaced by the CHAS.

The proposed standards relate to the CHAS implementation process. Thus, a grantee would be held accountable for taking all planned actions to meet CHAS goals; and for pursuing all resources it indicated it would pursue. To assure that each community's non-profit and other housing developers that may apply to HUD for assistance are fairly considered for certifications of consistency with the CHAS, where such a certification is a prerequisite for application, a grantee would be expected to provide certifications of consistency in a fair and impartial manner that furthers attainment of the purposes and objectives of the grantee's housing strategy. The final specific standard is that no grantee may hinder implementation of the CHAS by action or willful inaction.

Failure on the part of a grantee to meet its annual CHAS goals for persons and households to be assisted would not, in itself, constitute failure to follow the CHAS. While the Department would like to see every CHAS goal met, it is more concerned that the process of developing and implementing the CHAS be carried out in a manner that furthers achievement of the goal of the National Affordable Housing Act—that every American family be able to afford a decent home in a suitable environment. To this end, the proposed CHAS performance standards for entitlement recipients will focus on the CHAS implementation process, and, initially, if this process has been adequately followed, a lack of results would be viewed as signalling a need for further technical assistance or for modifying the CHAS. (See the recently published proposed rule for a Consolidated Plan, which would replace the CHAS.)

Other Matters

Environmental Impact

A Finding of No Significant Impact with respect to the environment has been made in accordance with HUD regulations at 24 CFR part 50, which implement section 102(2)(C) of the National Environmental Policy Act of 1969. The Finding of No Significant Impact is available for public inspection during regular business hours in the Office of the Rules Docket Clerk, Office of General Counsel, Department of Housing and Urban Development, Room 10276, 451 Seventh Street SW., Washington, DC 20410.

Regulatory Flexibility Act

The Secretary, in accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)), has reviewed this proposed rule before publication and by approving it certifies that this proposed rule does not have a significant economic impact on a substantial number of small entities. The proposed rule is limited to the effecting of relatively minor procedural amendments within the structure of the CDBG program regulations.

Executive Order 12612, Federalism

The General Counsel, as the Designated Official under section 6(a) of Executive order 12612, Federalism, has determined that the policies contained in this proposed rule will not have substantial direct effects on states or their political subdivisions, or the

relationship between the federal government and the states, or on the distribution of power and responsibilities among the various levels of government. As a result, the proposed rule is not subject to review under the order. The proposed rule is limited to making relatively minor, procedural amendments within the structure of the CDBG program regulations.

Executive Order 12606, the Family

The General Counsel, as the Designated Official under Executive Order 12606, *The Family*, has determined that this proposed rule does not have potential for significant impact on family formation, maintenance, and general well-being, and, thus, is not subject to review under the order. No significant change in existing HUD policies or programs will result from promulgation of this proposed rule, as those policies and programs relate to family concerns.

Regulatory Agenda

This proposed rule was listed as item number 1633 in the Department's Semiannual Agenda of Regulations published on April 25, 1994 (59 FR 20424, 20457) in accordance with Executive Order 12866 and the Regulatory Flexibility Act.

List of Subjects in 24 CFR Part 570

Administrative practice and procedure, American Samoa, Community development block grants, Grant programs—education, Grant programs—housing and community development, Guam, Indians, Lead poisoning, Loan programs—housing and community development, Low and moderate income housing, New communities, Northern Mariana Islands, Pacific Islands Trust Territory, Pockets of poverty, Puerto Rico, Reporting and recordkeeping requirements, Small cities, Student aid, Virgin Islands.

Accordingly, the Department proposes to amend 24 CFR part 570 as follows:

PART 570—COMMUNITY DEVELOPMENT BLOCK GRANTS

1. The authority citation for part 570 would continue to read as follows:

Authority: 42 U.S.C. 3535(d) and 5300–5320.

2. Section 570.3 would be amended to add a new definition of "Income;" and to revise the definitions of "Low and moderate income household or low-income household," "Low and moderate income person or low-income person," "Low-income household," "Low-income person," "Moderate income household," and "Moderate income person" to read as follows:

§ 570.3 Definitions.

* * * * *

Income, for the purpose of determining whether a family or household is low- or moderate-income under subpart C of this part, is defined as follows:

(1)(i) The definition of annual income under the Section 8 Housing Assistance Payments program at 24 CFR part 813 (except that if the CDBG assistance being provided is homeowner rehabilitation under § 570.202, the value of the homeowner's primary residence may be excluded from any calculation of Net Family Assets);

(ii) Income as reported under the Census long-form for the 1990 decennial Census. This definition includes:

(A) Wages, salaries, tips, commissions, etc.;

(B) Self-employment income from own non-farm business, including proprietorships and partnerships;

(C) Farm self-employment income;

(D) Interest, dividends, net rental income, or income from estates or trusts;

(E) Social security or railroad retirement;

(F) Supplemental Security Income, Aid to Families with Dependent Children, or other public assistance or public welfare programs;

(G) Retirement, survivor, or disability pensions; and

(H) Any other sources of income received regularly, including Veterans Administration payments, unemployment compensation, and alimony; or

(iii) Adjusted gross income as defined for purposes of reporting under IRS Form 1040 for individual Federal income tax purposes.

(2) The annual income of the family or household, as applicable, should be projected based on the prevailing rate of income of each person at the time assistance is provided for the individual, family or household, and shall include income from all family or household members. Income or asset enhancement derived from the CDBG-assisted activity shall not be considered in calculating income. Grantees may select any of the three listed definitions for each activity, except that integrally related activities of the same type and having the same qualifications as those set forth in § 570.208(a), shall use the same definition of annual income. The option to choose a definition does not apply to activities that qualify under § 570.208(a)(1) except when the recipient carries out a survey. Activities qualifying under § 570.208(a)(1) generally must use the area income data supplied to recipients by HUD.

* * * * *

Low and moderate income household or *low-income household* means a household having an income equal to or less than the Section 8 low income limits established by HUD.

Low and moderate income person or low-income person means a member of a family which has an income equal to or less than the Section 8 low income limits established by HUD. Unrelated individuals will be considered as one person families for this purpose.

Low-income household means a household having an income equal to or less than the Section 8 very low income limits established by HUD.

Low-income person means a member of a family which has an income equal to or less than the Section 8 very low income limits established by HUD. Unrelated individuals shall be considered as one-person families for this purpose.

* * * * *

Moderate income household means a household having an income equal to or less than the Section 8 low income limit and greater than the Section 8 very low income limit, established by HUD.

Moderate income person means a member of a family which has an income equal to or less than the Section 8 low income limit and greater than the Section 8 very low income limit, established by HUD. Unrelated individuals shall be considered as one-person families for this purpose.

* * * * *

3. In § 570.200, paragraph (g) would be revised to read as follows:

§ 570.200 General policies.

* * * * *

(g) *Limitation on planning and administrative costs.* No more than 20 percent of the sum of any grant, plus program income, shall be expended for planning and program administrative costs, as defined in §§ 570.205 and 507.206, respectively. Recipients of entitlement grants under subpart D shall conform with this requirement by limiting expenditures for planning and administration during a program year to an amount that does not exceed 20 percent of the sum of its entitlement grant made for that program year (if any) plus the program income received during that program year.

* * * * *

4. In § 570.201, paragraph (e) introductory text would be revised to read as follows:

§ 570.201 Basic eligible activities.

* * * * *

(e) *Public services.* Provision of public services (including labor, supplies, and materials) that are directed toward improving the community's public services and facilities, including but not limited to those concerned with employment, crime prevention, child care, health, drug abuse, education, fair housing counseling, energy conservation, welfare (but excluding the provision of income payments identified under § 570.207(b)(4)), homebuyer downpayment assistance, or recreational needs. In order to be eligible for CDBG assistance, a public service must meet each of the following criteria:

* * * * *

5. In § 570.207, paragraph (b)(4) would be revised to read as follows:

§ 570.207 Ineligible activities.

* * * * *

(b) * * *

(4) *Income payments.* The general rule is that CDBG funds may not be used for income payments. For purposes of the CDBG program, income payments means a series of subsistence-type grant payments made to an individual or family for items such as food, clothing, housing (rent or mortgage), day care or utilities, but excludes one-time emergency payments made to the provider of such items or services on behalf of an individual or family.

6. Section 570.301 would be amended by revising the section heading and paragraph (c) to read as follows:

§ 570.301 Presubmission and citizen participation requirements.

* * * * *

(c) Develop a statement of community development objectives and projected use of funds annually. The principal purpose of the statement is for the grantee to describe to HUD and its citizens how it plans to use CDBG funds. When completed and submitted to HUD, it is known as the final statement. The grantee must amend its final statement whenever it decides not to carry out an activity described in the final statement, to carry out an activity not already included in the final statement, or to change substantially the purpose, scope, location, or beneficiaries of an activity described in the statement. The statement and any amendments must be prepared in accordance with the following:

(1) *Sources and uses.* All available CDBG funds must be identified and accounted for in the statement by clearly identifying the source and planned use of all CDBG funds that the grantee expects to receive during the upcoming program year, plus any CDBG funds received in the current program year that are not included in the current year's final statement.

(i) The sources of CDBG funds to be included in the statement are:

(A) The annual grant to be received for that grant year;

(B) Program income expected to be received during that program year;

(C) Program income received during the preceding program year that has not been included in a final statement;

(D) Program income expected to be received during the program year and in future program years from float-funded activities described in the final statement (the amount of such income and the year(s) in which it is expected to be received must be identified and the grantee must also explain how it will respond to any delays in the receipt of such future year income (as required in paragraph (c)(4) of this section);

(E) Program income expected to be received during that program year from a float-funded activity that was described in an identified preceding final statement;

(F) Surplus funds from any urban renewal settlement for community development and housing activities; and

(G) Any grant funds returned to the line of credit, the planned use of which has not been included in a final statement.

(ii) The use of all such CDBG funds must be identified for specific activities and allowable contingencies, as described in paragraph (c)(2).

(2) *Content.* The statement must be submitted in the manner prescribed by HUD and must, at minimum, describe:

(i) The community development objectives the grantee proposes to pursue;

(ii) The community development activities the grantee proposes to carry out with anticipated CDBG funds to address its community development objectives.

(A) The statement must show how all of the funds expected to be available during the program year are expected to be used. This means that all of the funds identified under the sources section must be programmed for use in specific activities, except for any program income identified in the statement as stemming from a float-funded activity identified in a final statement from a preceding program year, and except that an amount not to exceed ten percent of such total available funds may be identified for the contingency of cost overruns in any of the activities contained in the statement.

(B) An activity may not be included in a final statement, whether originally or by amendment, unless the activity was previously described in the proposed statement, or a proposed amendment to the final statement, and has been properly subject to citizen participation under paragraph (c)(3) of this section. Neither may an activity be included in a form that has been substantially modified from the form in which it was made known to citizens pursuant to paragraph (c)(3). This means that, although the grantee has the final say as to which activities are selected for funding, it cannot elect to include a new or substantially modified activity that has not been subject to or derived from the process of citizen review.

(iii) Each activity must be described in sufficient detail, including the specific regulatory provisions under which it is eligible and is expected to meet a national objective, the amount of funds expected to be used, the location of the activity, the amount of program income expected to be generated, and when such income is expected to be available for use. The description must be in sufficient detail to permit a clear understanding of the nature of the activity and to allow citizens to determine the degree to which they may be affected. For activities for which the grantee has not yet decided on a specific location, such as when the grantee is allocating an amount of funds to be used for making loans or grants to businesses or for residential rehabilitation, the description shall identify who may apply for the assistance, the process by which the grantee expects to select who will receive the assistance (including selection criteria) and how much and under what terms the assistance will be provided. The statement may include an "urgent needs" activity (one that is not expected to qualify under § 570.208 (a) or (b)) only if the grantee identifies the activity in the statement and certifies that the activity is designed to meet other community development needs having a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community and other financial resources are not available.

(iv) The statement must also describe where citizens may obtain additional information about activities described in the statement.

(v) Float-funded activities, described in paragraph (c)(4) of this section, must be specifically identified as such in the statement.

(3) *Citizen participation.* (i) *Statement.* The grantee must prepare a statement identifying in the detail prescribed in paragraph (c)(2) the

activities it proposes to carry out, and must publish the statement community-wide to afford affected citizens an opportunity to examine the statement and to provide comments on it. Publishing the proposed statement in a newspaper of general circulation will be considered to constitute community-wide publication. Simply publishing a notice that the statement is available in public libraries is not adequate for this purpose, unless such publication is accompanied by a broad distribution of the statement among neighborhood or similar citizen groups representing virtually all areas of the community whose residents are predominantly low and moderate income or that are blighted. After comment on the proposed statement has been received, the grantee must consider the comments and make such modifications to the proposed statement as the grantee considers appropriate. Upon completion, the grantee must make the final statement available to the public.

(ii) *Amendment.* Before amending a final statement, the grantee must provide for citizen participation concerning proposed amendments. The grantee must provide citizens a reasonable amount of time to consider a proposed amendment and shall consider any citizens' comments and may make such modifications to the proposed amendment as the grantee considers appropriate. Upon completion, the grantee must make the amendment available to the public and must submit to HUD a description of changes adopted. The grantee may submit a copy of each statement amendment to HUD as it occurs, or the grantee may simply notify HUD in writing that the amendment has been made and, at the end of the program year, submit copies of all amendments made during the year. Letters notifying HUD of amendments and those transmitting copies of amendments must be signed by the official representative of the grantee authorized to take such action.

(4) *Float-funded activities and guarantees.* A recipient may use undisbursed funds in the line of credit and its CDBG program account that are budgeted in statements for one or more other activities that do not need the funds immediately, subject to the limitations described in paragraph (c)(4). Such funds shall be referred to as the "float" for purposes of this section. Each activity carried out using the float must meet all of the same requirements that apply to CDBG-assisted activities generally, and must be expected to produce program income in an amount at least equal to the amount of the float so used. Whenever the recipient proposes to fund an activity with the float, it must include the activity in its statement or amend the final statement for the current program year. For purposes of this section, an activity that uses such funds will be called a "float-funded activity." Each float-funded activity must be individually listed and described as such in the statement.

(i) The expected duration between obligation of assistance for a float-funded activity and receipt of program income in an amount at least equal to the full amount drawn from the float to fund the activity may not exceed 2.5 years. A loan for a longer term may not be funded from the float, but may be included in a statement if it is funded from CDBG funds other than the float (e.g., grant funds, or proceeds from an approved Section 108 Loan guarantee).

(ii) Unlike other projected program income, the full amount of income expected to be generated by a float-funded activity must be shown in the sources section of the statement containing the activity whether or not some or all of the income is expected to be received in a future program year. To justify the inclusion of activities that exceed the sources of funds shown in the statement as expected to be received in the program year covered by the statement, and to assure that citizens can clearly understand the risks inherent in undertaking such a float-funded activity, the recipient must specify in the sources section of the statement the total amount of program income expected to be received and the month(s) and year(s) that it expects the float-funded activity to generate each portion of such program income.

(iii) To help citizens assess the degree of risk to activities they support in case the float-funded activity fails to generate program income as scheduled, the recipient must also clearly declare its commitment to undertake one of the following options in the statement that identifies the float-funded activity. The recipient may commit either to:

(A) Amend or delete activities in an amount equal to any default or failure to produce sufficient income in a timely manner. If the grantee makes this choice, it must include a description of the process it will use to select the activities to be amended or deleted, how it will involve citizens in that process, and it must amend the applicable statement(s) showing those amendments or deletions promptly upon determining that the float-funded activity will not generate sufficient or timely program income; or

(B) Obtain an irrevocable line of credit from a commercial lender for the full amount of the float-funded activity and describe the lender and terms of such line of credit in the statement that identifies the float-funded activity. To qualify for this purpose, such line of credit must be unconditionally available to the recipient in the amount of any shortfall within 30 days of the date that the float-funded activity fails to generate the projected amount of program income on schedule; or

(C) Transfer general local government funds in the full amount of any default or shortfall to the CDBG line of credit within 30 days of the float-funded activity's failure to generate the projected amount of the program income on schedule.

(iv) When preparing a statement for a year in which program income is expected to be received from a float-funded activity and such program income has been shown in a prior statement, the sources section of the current statement shall identify the expected income and explain that the planned use of the income has already been described in prior statements, and shall identify the statements in which such description may be found.

* * * * *

7. Section 570.304 would be amended by adding a new paragraph (a)(4) to read as follows:

§ 570.304 Making of grants.

(a) * * *

(4) *GPR submissions.* All previously due GPRs that have not been submitted to HUD in the prescribed manner are properly submitted.

* * * * *

8. A new § 570.309 would be added to read as follows:

§ 570.309 Restriction on location of activities.

CDBG funds may assist an activity outside the jurisdiction of the grantee only if the grantee determines that the principal benefit of such an activity will be for residents within the jurisdiction of the grantee. The grantee shall document the basis for any such determination.

9. Section 570.500 would be amended by removing and reserving paragraphs (a)(1)(viii) and (b), and by revising paragraphs (a)(2) and (a)(3), to read as follows:

§ 570.500 Definitions.

* * * * *

(a) * * *

(2) Program income does not include income earned (except for interest described in § 570.513) on grant advances from the U.S. Treasury. The following items of income earned on

grant advances must be remitted to HUD for transmittal to the U.S. Treasury and will not be reallocated under section 106(c) or (d) of the Act:

(i) Interest earned from the investment of the initial proceeds of a grant advance by the U.S. Treasury;

(ii) Income (e.g., interest) earned on loans or other forms of assistance provided with CDBG funds that are used for activities determined by HUD either to be ineligible or to fail to meet a national objective in accordance with the requirements of subpart C of this part, or that fail substantially to meet any other requirement of this part; and

(iii) Interest earned on the investment of amounts reimbursed to the CDBG program account pursuant to § 570.910(b)(5) prior to the use of the reimbursed funds for eligible purposes.

(3) Examples of other receipts that are not considered program income are proceeds from fund raising activities carried out by subrecipients receiving CDBG assistance; funds collected through special assessments used to recover the non-CDBG portion of a public improvement; and proceeds from the disposition of real property acquired or improved with CDBG funds when the disposition occurs after the applicable time period specified in § 570.503(b)(8) of this part for subrecipient-controlled property, or in § 570.505 of this part for recipient-controlled property.

* * * * *

10. In § 570.502, paragraph (a)(5) would be revised to read as follows:

§ 570.502 Applicability of uniform administrative requirements.

(a) * * *

(5) Section 85.21 of this title, "Payment," except for § 85.21(f)(1) of this title and as modified by § 570.513;

* * * * *

11. In § 570.503, paragraph (b)(3) would be revised to read as follows:

§ 570.503 Agreements with subrecipients.

* * * * *

(b) * * *

(3) *Program income.* The agreement shall include the program income requirements set forth in § 570.504(c). The agreement shall also specify the subrecipient's estimated annual expenditure of CDBG funds and that any program income held by the subrecipient that is in excess of one-twelfth of that estimate be remitted to the recipient.

* * * * *

12. In § 570.504, paragraph (b)(2) would be revised to read as follows:

§ 570.504 Program income.

* * * * *

(b) * * *

(2) If the recipient chooses to retain program income, that program income shall be disposed of as follows:

(i) Program income in excess of one-twelfth of the most recent grant made pursuant to § 570.304 shall be remitted to HUD to be restored to the recipient's line of credit;

(ii) Substantially all other program income shall be disbursed for eligible activities before additional cash withdrawals are made from the U.S. Treasury.

* * * * *

13. In § 570.900, paragraph (b)(3) would be revised to read as follows:

§ 570.900 General.

* * * * *

(b) * * *

(3) In conducting performance reviews, HUD will rely primarily on information obtained from the recipient's performance report, records maintained, findings from on-site monitoring, audit reports, and the status of the line of credit. Where applicable, the Department may also consider relevant information pertaining to a recipient's performance gained from other sources, including litigation, citizen comments and other information provided by the recipient. A recipient's failure to maintain records in the prescribed manner may result in a finding that the recipient has failed to meet the applicable requirement to which the record pertains. A recipient's failure to submit a performance report in the prescribed manner may result in a finding that the recipient has substantially failed to meet the requirements of the program.

* * * * *

14. Section 570.903 would be revised to read as follows:

§ 570.903 Review to determine if the recipient is meeting its CHAS responsibilities.

(a) *Review timing and purpose.* HUD will review an entitlement grant recipient's CHAS performance prior to acceptance of a grant recipient's annual certification under § 570.303(l) to determine whether the recipient followed its HUD-approved CHAS for the most recently completed fiscal year, and that any housing activities assisted with CDBG funds during that period were consistent with that CHAS.

(b) *Following a CHAS.* The recipient has taken all of the planned actions, and has met the goals described in its annual plan. This includes, but is not limited to:

(1) Pursuing all resources identified in its investment plan which the grantee indicated it would pursue;

(2) Providing certifications of consistency, when requested to do so by applicants for HUD programs for which the grantee indicated in its investment plan that it would support application by other entities, in a fair and impartial manner; and

(3) Not hindering implementation of the CHAS by action or wilful inaction.

(c) *Disapproval.* If HUD determines that an entitlement grant recipient has not met the criteria outlined in paragraph (b) of this section, the recipient will be notified and provided up to 45 days to demonstrate to the satisfaction of the Secretary that it has followed its CHAS, considering all relevant circumstances and the recipient's actions and lack of actions affecting the provision of housing covered by the CHAS within its jurisdiction. Failure to so demonstrate in a timely manner will be cause for HUD to find that the recipient has failed to meet its certification. A complete and specific response by the recipient should describe:

(1) Any factors beyond the control of the recipient that prevented it from following its CHAS and any actions the recipient plans to take to alleviate such factors; and

(2) Actions taken by the recipient, if any, beyond those described in the CHAS performance report to facilitate following the CHAS, including the effects of such actions.

15. Section 570.910 would be amended by adding a new paragraph (b)(9) to read as follows:

§ 570.910 Corrective and remedial actions.

* * * * *

(b) * * *

(9) In the case of an entitlement recipient which has failed to submit a previously due performance report in the prescribed manner, delay making the grant until any outstanding performance report has been properly submitted to HUD.

Dated: July 29, 1994.

Andrew Cuomo,

Assistant Secretary for Community Planning and Development.

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Wednesday
August 10, 1994

Part X

Department of the Interior

Office of Surface Mining Reclamation and Enforcement

30 CFR Part 903

Surface Mining and Reclamation Operations Under a Federal Program for Arizona; Proposed Rule

DEPARTMENT OF THE INTERIOR

Office of Surface Mining Reclamation and Enforcement

30 CFR Part 903

RIN 1029–AB 81

Surface Mining and Reclamation Operations Under a Federal Program for Arizona

AGENCY: Office of Surface Mining Reclamation and Enforcement, Interior.

ACTION: Proposed rule.

SUMMARY: The Office of Surface Mining Reclamation and Enforcement (OSM) of the Department of the Interior (DOI) proposes a Federal program to regulate coal exploration and surface coal mining and reclamation operations on non-Federal and non-Indian lands in the State of Arizona. This includes surface effects of underground coal mining. This proposed program is necessary in order to regulate surface coal mining activities that may be taken in Arizona under applicable provisions of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), and under regulations found in 30 CFR Part 736, in the absence of a State program.

DATES: *Written comments:* OSM will accept written comments on the proposed rule until 4:00 p.m. local time on October 11, 1994

Public hearings: Upon request, OSM will hold a public hearing on the proposed rule in Phoenix, Arizona on September 26, 1994 at 9:30 a.m. local time. OSM will accept requests for public hearings until 4:00 p.m. local time on September 9, 1994. Individuals wishing to attend but not testify at any hearing should contact a person identified under **FOR FURTHER INFORMATION CONTACT** beforehand to verify that the hearing will be held.

ADDRESSES: *Written comments:* Mail or hand-deliver to: Office of Surface Mining Reclamation and Enforcement, 505 Marquette Avenue NW, Suite 1200, Albuquerque, New Mexico, 87102.

Public hearings: The addresses and times for any hearings which may be scheduled will be announced prior to the hearings.

Requests for public hearings: Submit requests orally or in writing to a person and address specified under **FOR FURTHER INFORMATION CONTACT.**

FOR FURTHER INFORMATION CONTACT: Thomas E. Ehmett, Office of Surface Mining Reclamation and Enforcement, 505 Marquette Avenue NW, Suite 1200, Albuquerque, New Mexico 87102; Telephone (505) 766–1486; or Nancy Broderick, Branch of Federal and Indian Programs, Division of Regulatory Programs, Office of Surface Mining Reclamation and Enforcement, 1951 Constitution Avenue NW, Washington, DC 20240; Telephone (202) 208–2564.

SUPPLEMENTARY INFORMATION:

I. Public Comment Procedures.
II. Background.
III. Discussion of Proposed Rule.
IV. Procedural Matters.

I. Public Comment Procedures

Availability of Copies

Copies of the proposed Arizona Federal regulatory program and all written comments received in response to this notice will be available for public inspection and may be obtained at the OSM office listed above under **ADDRESSES** Monday through Friday, 9:00 am to 4:00 pm local time, excluding holidays.

Written Comments

Written comments on the proposed rules should be specific, pertain to issues pertinent to the proposed rules, and explain the reason for any recommendation. Where possible, commenters should submit three copies of their comments (see **ADDRESSES**). Comments received after the time indicated under **DATES** or delivered to addresses other than Albuquerque, New Mexico will not necessarily be considered or included in the Administrative Record for the final rule.

Public Hearing

OSM will hold public hearings on the proposed rule on request only. The time, date, and address scheduled for the hearing in Phoenix, Arizona, is specified previously in this notice (see **DATES** and **ADDRESSES**).

Any person interested in participating at the hearing should inform Mr. Ehmett or Ms. Broderick (see **FOR FURTHER INFORMATION CONTACT**) either orally or in writing by 4:00 p.m. local time September 9, 1994. If no one has contacted Mr. Ehmett or Ms. Broderick to express an interest in participating in a hearing by that date, the hearing will not be held. If only one person expresses an interest, a public meeting rather than a hearing may be held and the results included in the Administrative Record.

If a hearing is held, it will be transcribed and will continue until all persons in attendance wishing to testify have been heard. To assist the transcriber and ensure an accurate record, OSM requests that persons who testify at a hearing give the transcriber a copy of their testimony. To assist OSM in preparing appropriate questions, OSM also requests that persons who plan to testify submit an advance copy of their testimony to OSM, at least two working days prior to the hearing. The testimony should be submitted to the address previously specified for the submission of written comments (see **ADDRESSES**). Any disabled individual who has need for a special accommodation to attend a public hearing should contact the individual listed under **FOR FURTHER INFORMATION CONTACT.**

II. Background

Under § 504(a) of the Surface Mining Control and Reclamation Act of 1977 (SMRCA), 30 U.S.C. 1201 et seq., the Secretary of the Interior (the Secretary) is required to promulgate a Federal program for a State for, among other reasons, the failure of the State to submit a proposed State program to the Secretary. Upon promulgation of a Federal regulatory program, the Secretary becomes the regulatory authority.

Once a decision is made that a Federal regulatory program is necessary for a State, the Secretary must make several determinations before promulgating a program. Section 504(a) of SMCRA requires that the Secretary take into consideration the nature of the State's terrain, climate, biological, chemical, and other relevant physical conditions. This requirement is also set forth in the regulations for the promulgation of Federal programs at 30 CFR Part 736. Section 505(b) of SMCRA and 30 CFR 736.22(a)(1) also provide that if a State has more stringent land use and environmental protection laws or regulations, they shall not be construed to be inconsistent with SMCRA or the Secretary's regulations. If the State's laws or regulations establish more stringent standards than those of SMCRA or the Secretary's regulations, or if the State regulates any aspect of the environment which neither SMCRA nor the Secretary's regulations protect, the Secretary would then specifically preserve those State standards in the Federal program. Thus the Secretary believes that the requirements of § 505(b) of SMCRA can best be met by identifying any State laws and regulations which impose equivalent or more stringent environmental controls and by listing them in § 903.700(e) of the Federal program.

Also, in promulgating a program for a State, Section 504(g) of SMCRA specifies that any State statutes or regulations which regulate surface mining and reclamation operations subject to SMCRA will be superseded

and preempted by the Federal program to the extent that they interfere with the achievement of the purposes and requirements of SMCRA and the Federal program. This provision is reinforced by § 505(a) of SMCRA, which states that only those State laws and regulations that are inconsistent with SMCRA and its implementing regulations shall be superseded by the Federal program. Thus, State statutes and rules regulating the same activities as those covered by the Federal statute and regulations, but which do not provide as much protection as do the Federal statute and regulations are considered to interfere with the achievement of the purposes of SMCRA and must be identified and preempted.

Finally, according to § 504(h) of SMCRA, a Federal program must include a process for coordinating the review and issuance of surface mining permits with other Federal or State permits applicable to the proposed operation. The Federal statutes with which compliance must be coordinated in the issuance of a surface mining permit are set out at 30 CFR 736.22(c). State statutes for which a permit is required must be identified in the process of promulgating a Federal program, and the Federal program must provide for coordination with the permit review and issuance procedures required by those statutes.

Federal programs are based on the Secretary's permanent program regulations, 30 CFR Chapter VII, Subchapters A, F, G, H, J, K, L, and M, which implement five essential aspects of the surface coal mining regulatory program: permitting, performance standards, designation of lands as unsuitable for mining, bonding, and inspection and enforcement. These regulations establish procedures and performance standards under SMCRA and form the benchmark for State and Federal regulatory programs.

The permanent regulations refer to the "regulatory authority," which is the Secretary under a Federal program. The Secretary has delegated all of his authority under SMCRA to the Assistant Secretary—Land and Minerals Management. (Secretarial Order No. 3013, Nov. 9, 1977, and Order No. 3099, Dec. 22, 1983). With limited exceptions, the Assistant Secretary has in turn redelegated all of this authority under SMCRA to the Director, OSM (216 Departmental Manual 1, November 9, 1977). Thus, the Director of OSM is the official directly responsible for the implementation of a Federal regulatory program.

The parts of the permanent regulatory program regulations that must be included in a Federal program are listed at 30 CFR 736.22(b). They include general requirements and definitions (Parts 700 and 701), the exemption for coal extraction incident to government-financed highway or other construction (Part 707), the designation of lands as unsuitable for surface mining (Parts 761, 762, and 769), permits and permit applications (Subchapter G), small operator assistance (Subchapter H), reclamation bonding (Subchapter J), performance standards (Subchapter K), inspection and enforcement (Parts 842, 843, and 845), and blaster training and certification (Subchapter M).

Federal programs are promulgated by means of cross-referencing the permanent program rules which set the substantive standards. Cross-referencing avoids duplication of the full text of the permanent regulatory program rules for each Federal program. The proposed Federal regulatory program for Arizona would establish 30 CFR Part 903. Sections within Part 903 would cross-reference the counterpart permanent program rules. For example, for general requirements for permits and permit applications, proposed § 903.773 of the Arizona Federal regulatory program would cross-reference 30 CFR Part 773 of the permanent program rules by stating that 30 CFR Part 773 shall apply to any person who makes application for a permit to conduct surface coal mining and reclamation operations.

For each particular permanent program regulation which needs to be modified for use in a Federal program, an additional paragraph or paragraphs would be added under the appropriate section to modify that particular permanent regulatory program standard to make it applicable to the Federal program State or to add additional requirements or standards.

One effect of cross-referencing in a Federal program is that if a permanent program rule is revised, the corresponding Federal program rule would be similarly revised. However, the notice of proposed rulemaking would invite comments not only on the proposed rule generally, but also on how it might affect a particular Federal program. If certain changes were needed for a Federal program, then a separate provision would be added to the Federal program regulation that is the counterpart to the permanent program rule.

Several provisions of the permanent program rules are already applicable to all Federal programs because they were promulgated for application to all regulatory programs and therefore need not be cross-referenced here. These provisions are 30 CFR Chapter VII, Subchapter P—Protection of Employees; Part 706—Restrictions on Financial Interests of Federal Employees; Part 768—Petition Process for Designation of Federal Lands Unsuitable for Surface Coal Mining; Subchapter D—Federal Lands Program; Part 955—Certification of Blasters in Federal Program States and on Indian lands.

On October 6, 1982, OSM published in the **Federal Register** a proposed Federal program to regulate coal exploration and surface coal mining and reclamation operations on non-Federal and non-Indian lands in Arizona (47 FR 44194). During the public comment period, OSM was informed by Arizona officials that all known coal reserves in Arizona are located on Indian lands. Based on this information, OSM determined at that time that a Federal program for Arizona for non-Federal and non-Indian lands was not necessary. Therefore, by notice published in the **Federal Register** on January 4, 1983, OSM withdrew its proposal for a Federal program (48 FR 273).

Subsequently, OSM has determined that a regulatory program in Arizona is needed in the event that coal exploration and surface coal mining and reclamation operations should occur on non-Federal and non-Indian lands in Arizona in the future. The State of Arizona has elected not to pursue primacy under a State program at this time. Consequently, pursuant to § 504(a) of SMCRA, OSM is once again proposing a Federal program in Arizona to regulate coal exploration and surface coal mining and reclamation operations on non-Federal and non-Indian lands.

III. Discussion of Proposed Rule

As mentioned above, when promulgating a Federal program for a State, the Secretary is required by Section 504(a) of SMCRA to take into consideration the nature of the terrain, climate, biological, chemical, and other relevant physical conditions of that State. OSM has reviewed the Arizona laws and regulations to determine whether they suggest that special provisions may be necessary or appropriate based on special terrain or other physical conditions in the State.

Review of State Law

In connection with its 1982 proposal, OSM reviewed Arizona State statutes to determine which ones provide regulatory requirements for coal exploration and surface coal mining and reclamation operations as defined by SMCRA, and to identify provisions that might be either more stringent than or inconsistent with the requirements of

SMCRA. The more stringent requirements, whether State or Federal, would be adopted for this program by listing in the proposed rules the Arizona State statutes that set different controls and for which compliance is required in the surface coal mining and reclamation operation. Determining whether the State statutes are more stringent than the Federal regulations was done on a case-by-case basis. Citation in the proposed Federal program of State statutes with which compliance is required is not meant as an adoption of those State statutes and regulations for purposes of enforcement by OSM. Citation of such statutes is intended as an aid to persons who must comply with both the Federal program requirements and State statutes. However, if a State law is cited below as interfering with the achievement of the purposes of SMCRA, it would be superseded to the extent that it is less stringent than the Federal program.

In accordance with 30 CFR Part 736, OSM has tentatively identified the following statutes and regulations which, in certain circumstances, impose stricter environmental controls than are provided for under SMCRA or the Federal regulations. Section 903.700(e) of the proposed Federal program for Arizona lists the Arizona laws which OSM has tentatively identified as setting more stringent land use and environmental controls for surface mining. The list set forth below is based in part on the list published on October 6, 1982 (47 FR 44194), and may need to be updated in a final rule adopting an Arizona Federal program. Those more stringent Arizona statutes are described and summarized as follows:

(1) The Arizona Commission of Agriculture and Horticulture has authority to abate public nuisances including noxious weed seeds. Arizona Revised Statutes (A.R.S.) Section 3–231 to Section 3–242. Violation of this statute is a misdemeanor.

(2) It is unlawful to injure any bird or harass any bird upon its nest to remove the nests or eggs of any bird without prior authorization of the Arizona Game and Fish Commission. A.R.S. Section 17–236.

(3) A bridge, dam, dike, or causeway may not be constructed over or in a navigable river or other navigable water without the authorization of the Governor. A.R.S. Section 18–301.

(4) The Department of Mineral Resources has jurisdiction over the mining of minerals, and oil and gas under Title 27 of the Arizona Revised Statutes. One of the functions of that Department is the prevention and elimination of hazardous dust conditions. A.R.S. Section 27–128. Violation of orders of state mine inspectors respecting dust prevention and control is a misdemeanor.

(5) Roads leading into waste dump areas and tailing areas from inhabited or public areas are required to be blocked off and warning signs posted on the perimeter of such areas. A.R.S. Section 27–317.

(6) The primary responsibility for the control and abatement of air pollution rests with the Arizona Department of Health Services and its Hearing Board. The Department is responsible for the establishment and enforcement of air pollution emission standards and ambient air quality standards as a part of a comprehensive air quality plan for Arizona. A.R.S. Title 49.

(7) The Arizona Department of Water Resources has jurisdiction over State water, including "surface waters." "Surface waters" means "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds, and springs on the surface.

For the purposes of administering this title surface water is deemed to include Central Arizona Project water." A.R.S. Section 45–101. It is a misdemeanor to knowingly use the water of another, or divert water from a stream, waste water or obstruct water flowing into a water work. A.R.S. Section 45–112. Possession of water lawfully denied to the possessor is prima facie evidence of one's guilt. A.R.S. Section 45–112. If water is to be used for mining purposes, the water rights may be severed from the land rights and transferred separately. The separation and transference of water rights are subject to numerous limitations, A.R.S. Section 45–172.

(8) Dams are defined as "any artificial barrier, including appurtenenant works for the impounding or diversion of water except those barriers for the purpose of controlling liquid borne material, twenty-five or more in height or the storage capacity of which will be more than fifty acre feet, but does not include any such barrier which is or will be less than six feet in height, regardless of storage capacity, or which has or will have a storage capacity not in excess of fifteen acre feet, regardless of height." A.R.S. Section 45–701. The construction, operation, repair or alteration of any dam without the prior approval of the Director of Water Resources is a misdemeanor. A.R.S. Section 45–702 to Section 45–716.

In accordance with 30 CFR Part 736, OSM has tentatively identified the following statutes and regulations as which, in certain circumstances, interfere with achievement of the purposes of SMCRA and the Federal program. Accordingly, OSM proposes to preempt them to the extent they relate to surface coal mining and reclamation operations subject to regulation under SMCRA. Section 903.700(f) of the proposed Federal program for Arizona lists the Arizona statutes and regulations which OSM has tentatively identified as interfering with the achievement of the purposes of SMCRA. The list set forth below is based on the list published on October 6, 1982 (47 FR 44194), and may need to be updated in a final rule adopting an Arizona Federal program. Those less stringent Arizona statutes and regulations are:

(1) Arizona Open Pits Mining Statute, A.R.S. Section 27–421 to Section 27–425.

(2) Arizona Administrative Code Rules 11–1–1301 through 11–1–1315.

Thus, OSM proposes that the Arizona statutes and regulations described above be followed only to the extent that they are not inconsistent with the regulation of coal exploration, surface coal mining operations, or the reclamation of surface coal mined lands in the State of Arizona pursuant to the proposed Federal regulations.

Comment is invited on whether the Arizona laws identified in Section 903.700(e) of the proposed Federal Program accurately reflect more stringent Arizona environmental controls which adequately modify the permanent program for application to Arizona so as to take into consideration the nature of the State's relevant physical conditions. Comment is similarly invited on whether the Arizona laws identified in Section 903.700(f) of the proposed Federal Program would interfere in certain circumstances with achievement of the purposes of SMCRA and the Federal program.

Comment is also invited concerning any other Arizona laws and regulations which establish more stringent or less stringent land use and environmental controls than SMCRA, which may not be included in this proposed rule, or which may have been revised or adopted since 1982.

Content and Organization of the Federal Program

This proposed rule, 30 CFR Part 903, is consistent with the previously proposed rulemaking of October 6, 1982 (47 FR 44194), except that this rulemaking includes modifications to account for revisions to the permanent program rules that have taken place

during the period between proposed rulemakings.

The content and organization of the proposed Federal program for Arizona would generally follow the permanent program regulations. However, as discussed above, instead of the full text appearing, each section includes only a reference to the pertinent permanent program regulation section. Sections 903.700(e) and (f) set out both more stringent and inconsistent State statutes. A separate paragraph is proposed to be added under each section where there are deviations from the Federal permanent program regulations for the Arizona Federal program. These paragraphs will generally be found in a subsection (b). The content and organization of the proposed Arizona Federal program would be based on the following provisions of the Federal permanent program regulations, 30 CFR Chapter VII:

Subchapter A—General
Subchapter F—Areas Unsuitable for Mining
Subchapter G—Surface Coal Mining and Reclamation Operations Permits and Coal Exploration Systems under Regulatory Programs
Subchapter H—Small Operator Assistance
Subchapter J—Bond and Insurance Requirements for Bonding of Surface Coal Mining and Reclamation Operations
Subchapter K—Permanent Program Performance Standards
Subchapter L—Permanent Program Inspection and Enforcement Procedures
Part 955—Certification Program for Blasters

Technical literature cited by OSM in the preambles to the permanent regulatory program (44 FR 14901–15309, March 13, 1979) and the regulatory reform rulemaking notices ending September 30, 1983, was relied upon in developing the Arizona Federal program. The reader is referred to those preambles for a discussion of the bases and purposes of the permanent program rules proposed to be referenced in the Arizona program without substantive change.

The numbering system of the permanent program regulations has been incorporated into the numbering system for the proposed Arizona Federal program. Subchapter T of 30 CFR Chapter VII has been established to include regulatory programs by State in alphabetical order, and each State has been assigned a part number. As previously indicated, the regulatory program for Arizona is assigned Part 903. Program elements have been categorized under headings similar to the subchapter titles of the permanent program in 30 CFR Chapter VII.

Detailed Discussion of the Arizona Program

General

Section 903.700 would contain six subsections: the first four subsections, 903.700(a), (b), (c), and (d), would contain general statements on the scope and applicability of the program. Section 903.700(e) would indicate Arizona State laws that have been identified as having provisions that regulate activities involved in surface coal mining operations and that have provisions that in some instances are more stringent than SMCRA and the Secretary's regulations. Section 903.700(f) would identify Arizona State laws and regulations that interfere with achievement of the purpose of SMCRA and Federal regulations. These identified State laws and regulations would be preempted and superseded.

Sections 903.701 through 903.707 would establish the same provisions, where applicable, as 30 CFR Chapter VII, Subchapter A, *General*. Section 903.701(a) would contain all applicable general requirements, including the definitions in 30 CFR 700.5 and 701.5. Subsection (b) is proposed to be added at § 903.701 to make clear that beginning on the effective date of this program and continuing until an operation has a permanent program permit issued by OSM, compliance with the interim program standards in 30 CFR Chapter VII, Subchapter B is required. Section 502(c) of SMCRA provides that all surface coal mining operations on lands on which such operations are regulated by a State shall comply with the interim program standards until a permanent program permit is issued. Paragraph (c) of § 903.701 would provide that records required by 30 CFR 700.14 to be made available locally to the public shall be retained at the OSM Albuquerque Field Office. Section 703.702 would establish the same requirements as Part 702, *Exemption for Coal Extraction Incidental to the Extraction of Other Minerals*. Section 903.707 would establish the same requirements as Part 707, *Exemption for Coal Extraction Incident to Government-Financed Highway or Other Construction*.

Permit Fees

Section 903.736 Permit fees, would establish the same provisions as 30 CFR section 736.25.

Areas Designated Unsuitable for Mining

Sections 903.761 through 903.764 would establish the same provisions, where applicable, as 30 CFR Chapter VII, Subchapter F, *Areas Unsuitable for Mining*. However, 30 CFR 736.15(b)(1) provides that the procedures and criteria for designating lands unsuitable shall be implemented one year after a Federal program is made effective for a State. Therefore, § 903.764 provides that Part 764 shall apply beginning one year after the effective date of the Arizona program. No separate section for Federal lands is proposed because 30 CFR Part 769 is directly applicable and need not be made a part of a Federal program for a State.

Permits and Coal Exploration Approvals

Sections 903.772 through 903.785 would establish the same provisions, where applicable, as 30 CFR Chapter VII, Subchapter G, *Surface Coal Mining and Reclamation Operations Permits and Coal Exploration Systems Under Regulatory Programs*. The following amplifications are being proposed: For exploration applications where 30 CFR 772.12 applies, § 903.772(b) would require that upon receipt of notification from the regulatory authority of the submission of an administratively complete application for an exploration permit, the applicant shall publish one public notice of the filing in a newspaper of general circulation in the county of the proposed exploration area, and provide proof of this publication to the regulatory authority within one week after the newspaper notice is published.

Section 903.772(c) would allow thirty (30) days after publication of the public notice for persons adversely affected to file written comments. Section 903.772(d) would require the regulatory authority to act upon a complete exploration application and any written comments within 15 days from the close of the comment period unless additional time is necessary due to the number of, or complexity of the issues.

In § 903.773, *Requirements for permits and permit processing*, proposed subsection (b) would list Federal laws and corresponding or relevant State laws that need coordination by OSM to prevent or minimize duplication of effort with Arizona. Section 905.773(c) as proposed contains the stipulation that no person may conduct coal exploration or surface coal mining and reclamation operations without first obtaining all other necessary permits from the State. This section, which lists State laws with which the Secretary will endeavor to coordinate when issuing a permit under this Federal program, is based on the list published on October 6, 1982, (47 FR 44194) and may have to be updated in a final rule establishing a Federal program for Arizona. The State laws

requiring coordination are summarized below:

(1) Arizona towns and cities are given long-range development and planning responsibility for their jurisdictions, are authorized to issue zoning ordinances and regulate the industrial use of municipal land and establish special zoning districts (A.R.S. Section 9–461 to Section 9–462–01). Arizona counties have general permitting authority and violation of a county building permit is a petty offense. A.R.S. 11–322 et seq. Each County's Board of Supervisors has responsibility for promulgating and enforcing the zoning ordinances for the county, and it is unlawful to use land in violation of a zoning regulation, ordinance or permit; violation of such regulation, ordinance or permit is a misdemeanor. A.R.S. Section 11–808, Section 11–803, and A.R.S. Section 11–821.

(2) The Arizona law concerning the perfection of mining claims and the establishment of claims to mineral rights is found in A.R.S. Section 27–201 to 27–210. Notice of such a claim must be recorded within 90 days in the appropriate office of the County having jurisdiction over the recording of land claims. A.R.S. Section 27–203.

(3) A mineral exploration permit is required before prospecting is allowed on public land. A.R.S. Section 27–251 to Section 27–256.

(4) A permit from the Department of Health Services is required for the discharge of solid wastes and air pollutants. A.R.S. Title 49, Chapters 1 and 2.

(5) An installation permit is required before any pollution-causing equipment may be installed. Before the equipment can commence operation an operating permit is required. The permits are not automatically transferable. It is a misdemeanor to violate any air pollution permit, ordinance or statute, and criminal intent is not an element of proof. A.R.S. Title 49.

(6) The Department of Health Services has the responsibility for issuing water pollutant discharge permits. A.R.S. Title 49, Chapter 2.

(7) It is unlawful to discharge wastes or drainage into State waters or reduce water quality below water quality standards or discharge pollutants into waters without a permit from the Department of Health Services, A.R.S. Title 45.

(8) The Department of State Lands has the responsibility for issuing mineral prospecting permits for State lands. A.R.S. Section 37–231.

(9) The waters from all sources belong to the State and are subject to appropriation and beneficial use. In order to appropriate water or make a beneficial use of water, a permit is required from the Director of the Department of Water Resources. The approval of the Director is required before such a permit may be transferred. A secondary permit from the Director is required before use may be made of reservoir waters. A.R.S. Title 45.

Comment is invited concerning the accuracy of this list, and is also invited concerning any other Arizona laws requiring coordination under Section 903.773 which may not be included in this proposed rule, or which may have been revised or adopted since 1982.

In addition to the requirements under the permanent program rules, OSM proposes adding other provisions for permit review. More detail is necessary when OSM is the regulatory authority in order to provide direction to the permit applicant. Section 903.773(d) would establish specific permit application review procedures. This is necessary to dispose of grossly deficient applications early in processing, to provide a procedure for obtaining additional information, and to indicate the procedure for determinations of completeness. The proposed rule at § 903.773(e) would allow OSM to require an applicant to submit supplemental information to ensure compliance with applicable Federal laws and regulations other than SMCRA and its implementing regulations. The proposed rule at § 903.773(f) would establish, pursuant to 30 CFR 773.15(a)(1), a time period of 60 days from the close of the comment period for the regulatory authority to issue a written decision unless additional time is necessary due to the number of, or complexity of the issues. The proposed rule at § 903.773(g) would establish a procedure for ensuring confidentiality of qualified permit application information. Such information would have to be labeled confidential and submitted separately to be reviewed by OSM for withholding from disclosure. In addition, § 903.773(g)(1) would require the public notice required by § 903.773(d)(3) to identify the type of information considered to be confidential. Finally, § 903.773(g)(2) would require OSM to rule on the confidentiality of labeled application information within ten days of the last publication of the notice required under § 903.773(d)(3).

The proposed rule at § 903.774(b) would provide that a revision of the permit that may have the potential to adversely impact the potential for the achievement of reclamation and the post-mining land use shall be considered significant. In addition, the rule provides that WSC shall consider the following factors as well as other relevant factors in determining the significance of a proposed revision: (1) Changes in production or recoverability of the coal resource; (2) The environmental effects; (3) The public interest in the operation, or likely interest in the proposed revision; and (4) Possible adverse impacts from the proposed revision on fish or wildlife, endangered species, bald or golden eagles, or cultural resources.

A significant revision would require public notice and would be subject to a formal hearing if one is requested.

The proposed rule at § 903.774(c) would require that OSM approve or disapprove non-significant permit revisions within a reasonable amount of time. The proposed rule at § 903.774(d) would allow 30 days for any person having an interest that is or may be adversely affected by a decision on the transfer, assignment, or sale of permit rights to submit written comments after publication of the notice required by 30 CFR 774.17(b)(2). The proposed rule at § 903.774(e) would allow interested persons and public entities 30 days from the last publication of the notice to submit written comments of objections on an application for significant revision or permit renewal.

The permanent program regulations at 30 CFR 779.19(a) give the regulatory authority discretion to require a map that delineates vegetation types in the proposed permit area. The proposed rule at § 903.779(b) requires the applicant for a surface mining permit to submit such a map. Similarly, the proposed rule at § 903.783(b) requires a vegetation map for underground mining permits.

Small Operator Assistance

Section 903.795 would establish the same standards for the small operator assistance program (SOAP) as are found in Part 795 of the permanent program rules. OSM expects during its administration of the SOAP in Arizona that Federal funds will be sufficient to provide for authorized services, and does not expect to exercise its option at 30 CFR 795.11(b). That option allows OSM to establish a formula for allocating limited funds to provide the service pursuant to Part 795. OSM will award SOAP contracts to qualified laboratories utilizing a streamlined procurement system that complies with the Federal Acquisition Regulations. Prior to issuing a Request for Proposals, OSM will announce its intention through publication in the Commerce Business Daily. OSM will qualify labs as part of its contracting process.

Bonding

Section 903.800 establishes the same provisions, where applicable, as 30 CFR Chapter VII, Subchapter J, *Bond and Insurance Requirements for Surface Coal Mining and Reclamation Operations.* The proposed rule at § 903.800(b) would require the operator to file an application for release of performance bond no later than 30 days prior to the end of the growing season. In addition, OSM is requesting information pertaining to any bonding requirements which may have been placed on existing surface coal mining operations in Arizona.

Performance Standards

Section 903.815 through 903.828 would establish the same provisions, where applicable, as 30 CFR Chapter VII, Subchapter K. The following changes would be made:

Proposed § 903.816(b) would require: (1) That the standards for Revegetation success for surface mining activities shall be those specified at 30 CFR 816.116(a)(2), and (2) that the statistically valid sampling techniques for measuring success shall be included in the mining and reclamation plan.

Proposed § 903.817(b) would require: (1) That the standards for revegetation success for underground mining activities shall be those specified in 30 CFR 817.116(a)(2); and (2) that the statistically valid sampling techniques for measuring success shall be included in the mining and reclamation plan.

Inspection and Enforcement Procedures

Sections 903.842, 903.843, 903.845, and 903.846 establish the same provisions as 30 CFR Chapter VII, Subchapter L, *Permanent Program Inspection and Enforcement Procedures.* No changes to the inspection and enforcement provisions of the permanent program regulations are proposed for the Arizona Federal program. The proposed rules at §§ 903.842(b) and 903.843(b) would require OSM to furnish to a designated Arizona State agency with jurisdiction over mining, on request, copies of inspection reports and enforcement actions, respectively.

Blaster Training and Certification

Section 903.955 cross-references 30 CFR Part 955 of the permanent program regulations.

IV. Procedural Matters

Federal Paperwork Reduction Act

This rule does not contain collections of information which require approval by the Office of Management and Budget under 44 U.S.C. 3501 *et seq.*

Executive Order 12866

This rule is not subject to Office of Management and Budget review under Executive Order 12866.

Regulatory Flexibility Act

The Department of the Interior has determined pursuant to the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, that this proposed rule will not have a significant economic impact on a substantial number of small entities because no small entities are expected to apply for permits under the Arizona Federal Program and the total number of permits applied for under the program is expected to be very small.

National Environmental Policy Act

Section 702(d) of SMCRA provides that promulgation of a Federal program shall not constitute a major Federal action under the National Environmental Policy Act, 42 U.S.C. 433. Thus, no environmental assessment or environmental impact statement is required for this rulemaking.

Executive Order 12778 (Civil Justice Reform)

This proposed rule has been reviewed under the applicable standards of section 2(b)(2) of Executive Order 12778, "Civil Justice Reform" (56 FR 55195). In general, the requirements of section 2(b)(2) are covered by the preamble discussion of this rule. Individual elements of the order are addressed below:

A. What would be the preemptive effect, if any, to be given to the regulation?

As provided for under SMCRA, the proposed regulatory program would have a preemptive effect with respect to State laws and regulations less stringent than SMCRA, as provided for under SMCRA (see above under *Discussion of Proposed Rule*).

B. What would be the effect of the regulation on existing Federal law or regulation, if any, including all provisions repealed or modified?

The proposed regulation would implement SMCRA in the State of Arizona, as described herein, and is not intended to modify the implementation of any other Federal statute. The preceding discussion of the proposed action specifies the Federal regulatory provisions that are affected by the proposed revision.

C. Would the regulation provide a clear and certain legal standard for affected conduct rather than a general standard, while promoting simplification and burden reduction?

The standards established by this rule are as clear and certain as practicable, given the complexity of the topics covered and the mandates of SMCRA.

D. What would be the retroactive effect, if any, to be given to the regulation?

There would be no retroactive effect to the proposed regulation.

E. Are administrative proceedings required before parties may file suit in court? Which proceedings apply? Is the exhaustion of administrative remedies required?

No administrative proceedings would be required before parties may file suit in court challenging the provisions of the proposed revision. Prior to any judicial challenge of the application of the rule, however, administrative procedures must be exhausted. Applicable administrative procedures may be found at 43 CFR Part 4.

F. Would the proposed action define key terms, either explicitly or by reference to other regulations or statutes that explicitly define those items?

Terms which are important to the understanding of the proposed action are set forth in 30 CFR 700.5 and 740.5.

G. Would the regulation address other important issues affecting clarity and general draftsmanship of regulations set forth by the Attorney General, with the concurrence of the Director of the Office of Management and Budget, that are determined to be in accordance with the purposes of the Executive Order?

The Attorney General and the Director of the Office of Management and Budget have not issued any guidance on this requirement.

Author

The principal author of these proposed regulations is James B. Smith, Regulatory Programs Branch, Albuquerque Field Office, 500 Marquette Ave. NW., Suite 1200, Albuquerque, NM 87110.

List of Subjects in 30 CFR Part 903

Coal mining, Intergovernmental relations, Surface mining, Underground mining, Reporting and recordkeeping requirements.

Dated: July 18, 1994.

Bob Armstrong,

Assistant Secretary, Land and Minerals Management.

Accordingly, OSM proposes to amend 30 CFR Chapter VII, Subchapter T as set forth below:

30 CFR Chapter VII, Subchapter T

1. Part 903 is added to read as follows:

PART 903—ARIZONA

Sec.

903.700 Arizona Federal Program.
903.701 General.
903.702 Exemption for coal extraction incidental to the extraction of other minerals.
903.707 Exemption for coal extraction incident to government-financed highway or other construction.
903.736 Permit fees.
903.761 Areas designated unsuitable for surface coal mining by act of Congress.
903.762 Criteria for designating areas as unsuitable for surface coal mining operations.
903.764 Process for designating areas unsuitable for surface coal mining operations.
903.772 Requirements for coal exploration.
903.773 Requirements for permits and permit processing.
903.774 Revision; renewal; and transfer, assignment, or sale of permit rights.
903.775 Administrative and judicial review of decisions.
903.777 General content requirements for permit applications.
903.778 Permit applications—Minimum requirements for legal, financial, compliance, and related information.
903.779 Surface mining permit applications—Minimum requirements for information on environmental resources.
903.780 Surface mining permit applications—Minimum requirements for reclamation and operation plan.
903.783 Underground mining permit applications—Minimum requirements for information on environmental resources.
903.784 Underground mining permit applications—Minimum requirements for reclamation and operation plan.
903.785 Requirements for permits for special categories of mining.
903.795 Small operator assistance program.
903.800 Bond and insurance requirements for surface coal mining and reclamation operations under regulatory programs.
903.815 Performance standards—Coal exploration.
903.816 Performance standards—Surface mining activities.
903.817 Performance standards—Underground mining activities.
903.819 Special performance standards—Auger mining.
903.822 Special performance standards—Operations in alluvial valley floors.
903.823 Special performance standards—Operations on prime farmland.
903.824 Special performance standards—Mountaintop removal.
903.827 Special performance standards—Coal preparation plants not located within the permit area of a mine.
903.828 Special performance standards—In situ processing.
903.842 Federal inspections.
903.843 Federal enforcement.
903.845 Civil penalties.
903.846 Individual civil penalties.
903.955 Certification of blasters.

Authority: 30 U.S.C. 1201 *et seq.*, as amended.

§ 903.700 Arizona Federal Program.

(a) This part contains all rules that are applicable to surface coal mining and reclamation operations in Arizona which have been adopted under the Surface Mining Control and Reclamation Act of 1977.

(b) Certain of the rules in this part cross-reference pertinent parts of the permanent program rules in this chapter. The full text of a cross-referenced rule is in the permanent program rule cited under the relevant section of the Arizona Federal Program.

(c) This part applies to all coal exploration and surface coal mining and reclamation operations in Arizona conducted on non-Federal and non-Indian lands. To the extent required by 30 CFR Part 740, this part also applies to operations on Federal lands in Arizona.

(d) The information collection requirements contained in this part have been approved by the Office of Management and Budget under 44 U.S.C. 3507 in its approval of the information collection requirements contained in the permanent regulatory program.

(e) The following provisions of Arizona law generally provide for more stringent environmental control and regulation of some aspects of surface coal mining and reclamation operations than do the provisions of the Surface Mining Control and Reclamation Act of 1977, and the regulations in this chapter. Therefore, pursuant to section 505(b) of the Act, they shall not generally be construed to be inconsistent with the Act, unless in a particular instance the rules in this chapter are found by OSM to establish more stringent environmental or land use controls:

(1) The Arizona Commission of Agriculture and Horticulture has authority to abate public nuisances including noxious weeds and noxious weed seeds. A.R.S. Sections 3–231 to 3–242. Violation of this statute is a misdemeanor.

(2) It is unlawful to injure any bird or harass any bird upon its nest or remove the nests or eggs of any bird without prior authorization of the Arizona Game and Fish Commission. A.R.S. Section 17–236.

(3) A bridge, dam, dike or causeway may not be constructed over or in a navigable river or other navigable water without the authorization of the Governor. A.R.S. Section 18–301.

(4) The Department of Mineral Resources has jurisdiction over the mining of minerals, and oil and gas under Title 27 of the Arizona Revised Statutes. One of the functions of that Department is the prevention and elimination of hazardous dust conditions. A.R.S. Section 27–128. Violation of orders of state mine inspectors respecting dust prevention and control is a misdemeanor.

(5) Roads leading into waste dump areas and tailing areas from inhabited or public areas are required to be blocked off and warning signs posted on the perimeter of such areas. A.R.S. Section 27–317.

(6) The primary responsibility for the control and abatement of air pollution rests with the Arizona Department of Environmental Quality and its Hearing Board. The Department is responsible for the establishment and enforcement of air pollution emission standards and ambient air quality standards as a part of a comprehensive air quality plan for Arizona. A.R.S. Title 49.

(7) The Arizona Department of Water Resources has jurisdiction over State water, including "surface waters." "Surface waters" means "the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface. For the purposes of administering this title, surface water is deemed to include Central Arizona Project water." A.R.S. Section 45–101. It is a misdemeanor to knowingly use the water of another, or divert water from a stream, waste water or obstruct water flowing into a water work. A.R.S. Section 45–112. Possession of water lawfully denied to the possessor is prima facie evidence of one's guilt. A.R.S. Section 45–112. If water is to be used for mining purposes the water rights may be severed from the land rights and transferred separately. The separation and transference of water rights is subject to numerous limitations. A.R.S. Section 45–172.

(8) Dams are defined as "any artificial barrier, including appurtenant works for the impounding or diversion of water except those barriers for the purpose of controlling liquid borne material, twenty-five feet or more in height or the storage capacity of which will be more than fifty acre feet, but does not include any such barrier which is or will be less than six feet in height, regardless of storage capacity, or which has or will have a storage capacity not in excess of fifteen acre feet, regardless of height." A.R.S. Section 45–701. The construction, operation, repair or alteration of any dam without the prior approval of the Director of Water

Resources is a misdemeanor. A.R.S. Section 45–702 to Section 45–716..

(f) The following are the Arizona laws and regulations that generally interfere with the achievement of the purposes and requirements of the Act and are, in accordance with section 504(g) of the Act, preempted and superseded. Other Arizona laws may in an individual situation interfere with the purposes and achievements of the Act and may be preempted and superseded with respect to the performance standards of §§ 903.815 through 903.828 as they affect a particular coal exploration or surface mining operation by publication of a notice to that effect in the Federal Register.

(1) Arizona Open Pits Mining Statute, A.R.S. Section 27–421 to Section 27–425.

(2) Arizona Administrative Code Rules 11–1–1301 through 11–1–1315.

§ 903.701 General.

(a) Sections 700.5, 700.11, 700.12, 700.13, 700.14, 700.15 and Part 701 of this chapter shall apply to coal exploration and surface coal mining and reclamation operations in Arizona.

(b) Beginning on the effective date of this program, each surface coal mining and reclamation operation in Arizona shall comply with Subchapter B of this chapter until issuance of a permanent program permit under the provisions of Subchapter C of this chapter.

(c) Records required by § 700.14 of this chapter to be made available locally to the public shall be made available in the OSM Albuquerque Field Office.

§ 903.702 Exemption for coal extraction incidental to the extraction of other minerals.

Part 702 of this chapter, *Exemption for Coal Extraction Incidental to the Extraction of Other Minerals*, shall apply to any person who conducts coal extraction incidental to the extraction of other minerals for purposes of commercial use or sale.

§ 903.707 Exemption for coal extraction incident to government-financed highway or other construction.

Part 707 of this chapter, *Exemption for Coal Extraction Incident to Government-Financed Highway or Other Construction*, shall apply to surface coal mining and reclamation operations.

§ 903.736 Permit fees.

Section 736.25 of this chapter, *Permit fees*, shall apply to any person who makes application for a permit to conduct surface coal mining and reclamation operations in Arizona.

§ 903.761 Areas designated unsuitable for surface coal mining by act of Congress.

Part 761 of this chapter, *Areas Designated by Act of Congress*, shall apply to surface coal mining operations.

§ 903.762 Criteria for designating areas as unsuitable for surface coal mining operations.

Part 762 of this chapter, *Criteria for Designating Areas Unsuitable for Surface Coal Mining Operations*, shall apply to surface coal mining operations.

§ 903.764 Process for designating areas unsuitable for surface coal mining operations.

Part 764 of this chapter, *State Processes for Designating Areas Unsuitable for Surface Coal Mining Operations*, pertaining to petitions, initial processing, hearing requirements, decisions, data base and inventory systems, public information, and regulatory responsibilities, shall apply to surface coal mining operations beginning one year after the effective date of this program.

§ 903.772 Requirements for coal exploration.

(a) Part 772 of this chapter, *Requirements for Coal Exploration*, shall apply to any person who conducts coal exploration. For those applications where § 772.12 applies, the requirements of paragraphs (b) through (d) shall apply in place of § 772.12(c) (1) and (3) and § 772.12(d)(1).

(b) The applicant upon receipt of notification from the regulatory authority of the submission of an administratively complete application for an exploration permit, shall publish one public notice of the filing in a newspaper of general circulation in the county of the proposed exploration area, and provide proof of this publication to the regulatory authority within one week after the newspaper notice is published.

(c) Any person having an interest that is or may be adversely affected shall have the right to file written comments within thirty (30) days after the advertisement appears in the newspaper.

(d) The regulatory authority shall act upon an administratively complete application for a coal exploration permit and any written comments within 15 days from the close of the comment period unless additional time is necessary due to the number of, or complexity of, the issues. The approval of a coal exploration permit shall be based only on a complete and accurate application.

§ 903.773 Requirements for permits and permit processing.

(a) Part 773 of this chapter, *Requirements for Permits and Permit Processing*, shall apply to any person who applies for a permit for surface coal mining and reclamation operations.

(b) The Secretary shall coordinate, to the extent practicable, his/her responsibilities under the following Federal laws with the relevant Arizona laws to avoid duplication:

Federal law	State law
(1) Clean Water Act, as amended, 33 U.S.C. 1251 et seq	A.R.S. Title 49, Art. 2, Sec 221–225; A.R.S. Title 49, Art. 3, Sec 241–251; A.R.S. Title 49, Art. 10, Sec 361–363; A.R.S. Title 49, Art. 11, Sec 371–381.
(2) Clean Air Act, as amended, 42 U.S.C. 7401 et seq	A.R.S. Title 49.
(3) Resource Conservation and Recovery Act, 42 U.S.C. 3251 et seq	
(4) National Environmental Policy Act, 42 U.S.C. 4321 et seq	
(5) Archeological and Historic Preservation Act, 16 U.S.C. 470 et seq	Arizona Antiquities Act—A.R.S. Title 41, secs. 821, 841–846, 861, 862, 865, 1352.
(6) National Historic Preservation Act, 16 U.S.C. 470 et seq	A.R.S. Title 13 Secs. 3702, 3702.1; Title 41 secs. 511, 511.04, 821, 861, 862, 1352; Title 44 sec. 123.
(7) Coastal Zone Management Act, 16 U.S.C. 1451, 1453–1464	
(8) Section 208 of the Clean Water Act, as amended, 33 U.S.C. 1251 et seq.	A.R.S. Sections 49–101, 201 and 371.
(9) Endangered Species Act, 16 U.S.C. 1531 et seq	A.R.S. Title 17 Section 231A.2.
(10) Fish and Wildlife Coordination Act, 16 U.S.C. 661–667	Arizona Admin. Code Title 18 Chapter 10, Article 1.

Federal law	State law
(11) Noise Control Act, 42 U.S.C. 4903	
(12) Bald Eagle Protection Act, 16 U.S.C. 668–668(d)	A.R.S. Title 17 Section 235.

(c) Where applicable, no person shall conduct coal exploration operations which result in the removal of more than 250 tons in one location or surface coal mining and reclamation operations without a permit issued by the Secretary pursuant to 30 CFR parts 772 an 773 and permits, leases, and/or certificates required by the State of Arizona, including compliance with the following:

(1) Municipal planning statues (A.R.S. Section 9–461 to 9–462.01);

(2) County planning and zoning statutes (A.R.S. Section 11–322 et seq.;

(3) A.R.S. Section 11–808, 11–821;

(4) Statutes governing perfection and recordation of mining claims (A.R.S. Section 27–201 to 27–210);

(5) Statutes requiring mineral exploration permits (A.R.S. Section 27–251 to 27–256);

(6) Solid waste and air pollution discharge permits, installation and operation permits required for equipment causing air pollution and water pollution discharge permits (A.R.S. Title 49, Chapters 1 and 2);

(7) Mineral prospecting permits for State lands (A.R.S. Section 37–231); and

(8) Permits for use of State waters and permits for secondary use of reservoir waters (A.R.S. Title 45).

(d) In addition to the requirements of Part 773, the following permit application review procedures shall apply:

(1) Any person applying for a permit shall submit, at a minimum, five copies of the application to OSM's Western Support Center (WSC) in Denver, Colorado.

(2) WSC shall review an application for administrative completeness and acceptability for further review, and shall notify the applicant in writing of the findings. WSC may:

(i) Reject a flagrantly deficient application, notifying the applicant of the findings;

(ii) Request additional information required for completeness, stating specifically what information must be supplied; or

(iii) Judge the application administratively complete and acceptable for further review.

(3) When the application is judged administratively complete, the applicant shall be advised by WSC to file the public notice required by § 773.13 of this chapter.

(4) A representative of WSC may visit the proposed permit area if necessary to determine whether the operation and reclamation plans are consistent with actual site conditions. The applicant will be notified of the time of the visit in advance.

(5) Adequacy of information to allow WSC to comply with the National Environmental Policy Act, 42 U.S.C. 4322, shall be considered in the determination of a complete application. WSC may require specific additional information from the applicant as any environmental review progresses when such specific information is needed.

(e) In addition to the information required by subchapter G of this chapter, WSC may require an applicant to submit supplemental information to ensure compliance with applicable Federal laws and regulations other than the Act and 30 CFR Title VII.

(f) The regulatory authority shall review the application for a permit, any written comments and objections submitted; and all of the records of any informal conference or hearing held on the application. Where there is no Environmental Impact Statement (EIS), the regulatory authority shall issue a written decision within 60 days from the close of the comment period or, if an informal conference is held under § 773.13(c), 60 days from the conclusion of the informal conference unless additional time is necessary due to the number of, or complexity of the issues. Where an EIS has been prepared for the application, no decision on the proposed action shall be issued until at least 30 days after the Environmental Protection Agency's (EPA) publication of the notice of availability of the final EIS in the **Federal Register**.

(g) Only application information that is labeled confidential by the applicant and submitted separately from the remainder of the application will be reviewed by OSM for withholding from disclosure under § 773.13(d).

(1) If the application contains information identified as confidential by the applicant, the public notice required by § 903.773(d)(3) must identify the type of information considered to be confidential.

(2) OSM shall determine the qualification of any application information labeled confidential within 10 days of the last publication of the notice required under § 903.773(d)(3) of this chapter, unless additional time is necessary to obtain public comment or in the event of unforeseen circumstances.

§ 903.774 Revision; renewal; and transfer, assignment, or sale of permit rights.

(a) Part 774 of this chapter, *Revision; Renewal; and Transfer, Assignment, or Sale of Permit Rights*, shall apply to any such actions involving surface coal mining and reclamation operations permits, except as specified below.

(b) Any revision to the approved mining or reclamation plan shall be subject to review and approval by WSC. WSC consider the following factors as well as other relevant factors in determining the significance of a proposed revision:

(1) Changes in production or recover ability of the coal resource;

(2) The environmental effects;

(3) The public interest in the operation, or likely interest in the proposed revision; and

(4) Possible adverse impacts from the proposed revision on fish or wildlife, endangered species, bald or golden eagles, or cultural resources.

(c) Any significant revision to the approved mining or reclamation plan shall be subject to the public notice and hearing provisions of §§ 903.703(b)(3) and 773.13 (b) and (c) prior to approval and implementation.

(d) Any revision to the approved reclamation plan that may have the potential to adversely impact the potential for the achievement of reclamation and the post-mining land use shall be considered a significant permit revision.

(e) The regulatory authority will approve or disapprove non-significant permit revisions within a reasonable amount of time from the receipt of a complete and accurate revision application. Significant revision and renewals will be approved or disapproved under the provisions of § 903.773(f).

(f) In addition to the requirements of Part 774 of this chapter, any person having an interest which is or may be adversely affected by a decision on the transfer, assignment, or sale of permit rights, including an official of any Federal, State, or local government agency, may submit written comments on the application to the Office within 30 days of the publication of the newspaper advertisement required by

§ 774.17(b)(2) of this chapter, or receipt of an administratively complete application, whichever is later.

(g) Within 30 days from the last publication of the newspaper notice, written comments or objections to an application for significant revision or renewal of a permit under § 774.15 may be submitted to the regulatory authority by: (1) any person having an interest that is or may be adversely affected by the decision on the application; or (2) public entities notified under § 773.13(a)(3) of this chapter with respect to the effects of the proposed mining operations on the environment within their areas of responsibility.

§ 903.775 Administrative and judicial review of decisions.

Part 775 of this chapter, *Administrative and Judicial Review of Decisions*, shall apply to all decisions on permits.

§ 903.777 General content requirements for permit applications.

(a) Part 777 of this chapter, *General Content Requirements for Permit Applications*, shall apply to any person who makes application for a permit to conduct surface coal mining and reclamation operations.

(b) Any person who wishes to conduct surface coal mining and reclamation operations shall file a complete application as early as possible before the date when a permit is desired and shall pay to OSM a permit fee in accordance with § 903.736.

(c) Any person who wishes to revise a permit shall submit a complete application as early as possible before the date that approval of the permit revision is desired and shall pay a permit fee in accordance with 30 CFR 777.17.

§ 903.778 Permit applications—Minimum requirements for legal, financial, compliance, and related information.

Part 778 of this chapter, *Permit Applications—Minimum Requirements for Legal, Financial, Compliance, and Related Information*, shall apply to any person who makes application for a permit to conduct surface coal mining and reclamation operations.

§ 903.779 Surface mining permit applications—Minimum requirements for information on environmental resources.

(a) Part 779 of this chapter, *Surface Mining Permit Applications—Minimum Requirements for Information on Environmental Resources*, shall apply to any person who makes application to conduct surface coal mining and reclamation operations.

(b) In addition to the requirements of Part 779, the permit application shall contain a map that delineates existing vegetative types and a description of the plant communities within the proposed permit area and within any proposed reference area.

§ 903.780 Surface mining permit applications—Minimum requirements for reclamation and operation plan.

Part 780 of this chapter, *Surface Mining Permit Applications—Minimum Requirements for Reclamation and Operation Plan*, shall apply to any person who makes application to conduct surface coal mining and reclamation operations.

§ 903.783 Underground mining permit applications—Minimum requirements for information on environmental resources.

(a) Part 783 of this chapter, *Underground Mining Permit Applications—Minimum Requirements for Information on Environmental Resources*, shall apply to any person who makes application to conduct underground coal mining operations.

(b) In addition to the requirements of Part 783, the permit application shall contain a map that delineates existing vegetative types and a description of the plant communities within the proposed permit area and within any proposed reference area.

§ 903.784 Underground mining permit applications—Minimum requirements for reclamation and operation plan.

Part 784 of this chapter, *Underground Mining Permit Applications—Minimum Requirements for Reclamation and Operation Plan*, shall apply to any person who makes application for a permit to conduct underground coal mining operations.

§ 903.785 Requirements for permits for special categories of mining.

Part 785 of this chapter, *Requirements for permits for Special Categories of Mining*, shall apply to any person who makes application for a permit to conduct certain categories of surface coal mining and reclamation operations as specified therein.

§ 903.795 Small operator assistance program.

Part 795 of this chapter, *Small Operator Assistance Program*, shall apply to any person making application for assistance under the small operator assistance program.

§ 903.800 Bond and insurance requirements for surface coal mining and reclamation operations under regulatory programs.

(a) Part 800 of this chapter, *Bond and Insurance Requirements for Surface Coal Mining and Reclamation Operations Under Regulatory Programs*, shall apply to all surface coal mining and reclamation operations, except for § 800.40(a)(1) regarding the bond release application, for which paragraph (b) of this section substitutes.

(b) The permittee may file an application with the regulatory authority for the release of all or part of a performance bond. Applications shall be filed no later than 30 days prior to the end of the vegetation growing season in order to properly evaluate the completed reclamation operations. The appropriate times or seasons for the evaluation of certain types of reclamation shall be identified in the mining and reclamation plan required in Subchapter G of this Chapter and approved by the regulatory authority.

§ 903.815 Performance standards—Coal exploration.

Part 815 of this chapter, *Permanent Program Performance Standards—Coal Exploration*, shall apply to any person who conducts coal exploration.

§ 903.816 Performance standards—Surface mining activities.

(a) Part 816 of this chapter, *Permanent Program Performance Standards—Surface Mining Activities*, shall apply to any person who conducts surface mining activities, except § 816.116(a)(1) regarding revegetation success standards, for which paragraph (b) of this section substitutes.

(b) Standards for success shall be those identified in § 816.116(a)(2). Statistically valid sampling techniques for measuring success shall be included in the mining and reclamation plan, and approved by the regulatory authority.

§ 903.817 Performance standards—Underground mining activities.

(a) Part 817 of this chapter, *Permanent Program Performance Standards—Underground Mining Activities*, shall apply to any person who conducts underground mining activities, except § 817.116(a)(1) regarding revegetation success standards, for which paragraph (b) of this section substitutes.

(b) Standards for success shall be those identified in § 817.116(a)(2). Statistically valid sampling techniques for measuring success shall be included in the mining and reclamation plan, and approved by the regulatory authority.

§ 903.819 Special performance standards—Auger mining.

Part 819 of this chapter, *Special Permanent Program Performance Standards—Auger Mining,* shall apply to any person who conducts surface coal mining operations which include auger mining.

§ 903.822 Special performance standards—Operations in alluvial valley floors.

Part 822 of this chapter, *Special Permanent Program Performance Standards—Operations in Alluvial Valley Floors,* shall apply to any person who conducts surface coal mining and reclamation operations on alluvial valley floors.

§ 903.823 Special performance standards—Operations on prime farmland.

Part 823 of this chapter, *Special Permanent Program Performance Standards—Operations on Prime Farmland,* shall apply to any person who conducts surface coal mining and reclamation operations on prime farmland.

§ 903.824 Special performance standards—Mountaintop removal.

Part 824 of this chapter, *Special Permanent Program Performance Standards—Mountaintop Removal,* shall apply to any person who conducts surface coal mining and reclamation operations constituting mountaintop removal mining.

§ 903.827 Special performance standards—Coal preparation plants not located within the permit area of a mine.

Part 827 of this chapter, *Permanent Program Performance Standards—Coal Preparation Plants Not Located Within the Permit Area of a Mine,* shall apply to any person who conducts surface coal mining and reclamation operations which include the operation of a coal preparation plant not located within the permit area of a mine.

§ 903.828 Special performance standards—In situ processing.

Part 828 of this chapter, *Special Permanent Program Performance Standards—In Situ Processing,* shall apply to any person who conducts surface coal mining and reclamation operations which include the in situ processing of coal.

§ 903.842 Federal inspections.

(a) Part 842 of this chapter, *Federal Inspections,* shall apply to all coal exploration and surface coal mining and reclamation operations.

(b) In addition to the requirements of Part 842, copies of inspection reports will be furnished, upon request, to a designated Arizona State agency with jurisdiction over mining.

§ 903.843 Federal enforcement.

(a) Part 843 of this chapter, *Federal Enforcement,* shall apply regarding enforcement action on coal exploration and surface coal mining and reclamation operations.

(b) In addition to the requirements of Part 843, copies of enforcement actions and orders to show cause will be furnished, upon request, to a designated Arizona State agency with jurisdiction over mining.

§ 903.845 Civil penalties.

Part 845 of this chapter, *Civil Penalties,* shall apply to the assessment of civil penalties for violations on coal exploration and surface coal mining and reclamation operations.

§ 905.846 Individual civil penalties.

Part 846 of this chapter, *Individual Civil Penalties,* shall apply to the assessment of individual civil penalties under section 518(f) of the Act.

§ 903.955 Certification of blasters.

Part 955 of this chapter, *Certification of Blasters in Federal Program States and on Indian Lands,* shall apply to the training, examination and certification of blasters for surface coal mining and reclamation operations.

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